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Athens, Ohio

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WHAT ARE THE PERSONALITY TRAITS OF THE SUCCESSFUL SALES-PERSON?

ARTHUR F. DODGE
University of Illinois

IN a previous article[1] the writer called attention to the tendency for sales-persons to score high in social dominance as measured by the Bernreuter Personality Inventory. It was pointed out, however, that it would be improper to conclude from this evidence that a relationship existed between social dominance score and sales success.

Later a study designed to determine what relationship, if any, exists between personality and sales success was carried on with a group of 75 salespeople from a large department store. This study was reported in an earlier issue of this Journal.[2] A brief summary of the findings follows:

1. A low positive correlation ($+.16 \pm .16$) was indicated between social dominance score and sales success.
2. This correlation is much too low to be of value in differentiating between good and poor salespeople.
3. None of the other Bernreuter scores showed any higher correlation with sales success.
4. However, an item analysis of the personality inventories of eighteen of the best salespeople and fifteen of the poorest salespeople indicated significant differences.
5. A scoring system set up on the basis of this item analysis was found to differentiate the 18 best salespeople from the 15 poorest salespeople with no overlapping.
6. Also, this same scoring system when applied to the personality inventories of the 42 remaining salespeople in the

[1] Dodge, Arthur F., "Social Dominance of Clerical Workers and Salespersons," *Journal of Educational Psychology*, Vol. XXVIII, No. 1, p. 71.

[2] Dodge, Arthur F., "Social Dominance and Sales Personality," JOURNAL OF APPLIED PSYCHOLOGY, Vol. XXII, No. 2, p. 132.

original group showed a coefficient of correlation between score and sales success of $+.60 \pm .09$ for the salesmen and $+.36 \pm .14$ for the saleswomen.

The results of this study seem to indicate that there is some basis for the popular belief that personality is an important factor in sales success. Encouraged by these results, the writer continued the study to determine what are the outstanding personality traits of the successful sales-person, as indicated by the replies of this group of salespeople to the questions in the Bernreuter Inventory. The present article reports this continued study.

The scoring system mentioned above was based on 62 of the 125 items in the Inventory. In the case of each of these 62 items there was an apparent tendency for the best salespeople to answer differently from the poorest salespeople. An item analysis of the Personality Inventories of the 42 remaining members of the group was now made to check these apparent tendencies. As a result, 21 of the 62 items were dropped because the tendencies indicated by the previous study were not confirmed. This left 41 items with respect to which there was a rather consistent tendency throughout the total group of 75 for the better salespeople to answer differently from the poorer. An attempt was now made to group these 41 items according to the trait indicated. For example, the answers to seven of the items indicate that the better salespeople tend to report themselves less moody and less subject to worry than do the poorer salespeople. These items are numbered 2, 21, 49, 54, 73, 104, and 106 in the Bernreuter Inventory and there is a consistent tendency in each item for the better salespeople to answer "No" more frequently than do the poorer salespeople. This tendency is indicated in Table I by listing in the third column the per cent of the best salespeople who gave the favored answer, "No;" in the next column the per cent of above average giving this answer; in the next column the per cent of below average; and in the last column the per cent of the poorest salespeople giving this answer. To avoid the necessity of referring to a

Bernreuter Inventory, the items referred to in the table are given at the bottom of the table.

TABLE I

Extent to which the better salespeople tend to report themselves as less moody and less subject to worry than do the poorer salespeople

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
2	No	56	60	22	33
21	No	50	20	11	33
49	No	78	60	22	53
54	No	83	93	44	80
73	No	89	80	44	60
104	No	83	80	44	60
106	No	78	73	33	67

2. Do you day-dream frequently?

21. Do ideas often run through your head so that you can not sleep?

49. Do you often experience periods of loneliness?

54. Do you often feel lonesome when you are with other people?

73. Does some particularly useless thought keep coming into your mind to bother you?

104. Do your feelings alternate between happiness and sadness without apparent reason?

106. Do you worry over possible misfortune?

Answers to the six items, 3, 46, 52, 80, 89, and 93, indicate that the better salespeople tend to report themselves as more self-sufficient and self-confident than do the poorer salespeople. Table II, set up in a manner similar to Table I, indicates the extent to which this is true. It will be noticed that in this table, two of the favored responses are "Yes," and four are "No," but a glance at the statement of each question as given at the bottom of the table will show that in each case the favored response indicates self-sufficiency or self-confidence.

TABLE II

Extent to which the better salespeople tend to report themselves as more self-sufficient and self-confident than do the poorer salespeople

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
3	Yes	89	87	78	73
46	No	83	73	56	60
52	Yes	72	80	33	40
80	No	89	93	67	80
89	No	28	13	0	7
93	No	89	87	89	80

3. Do you usually work things out for yourself rather than get someone to show you?

46. Do jeers humiliate you even when you know you are right?

52. Do you usually prefer to do your own planning alone rather than with others?

80. Do you lack self-confidence?

89. Do you like to get many views from others before making an important decision?

93. Do you have difficulty making up your mind for yourself?

Tables III to X indicate that there is a tendency for the better salespeople to report themselves as more aggressive, as more willing to assume responsibility, as more social, as less self-conscious, as less desirous of telling others of personal good or bad fortune, as less resentful of criticism or discipline, as more radical and unconventional, as preferring face to face discussion rather than reading or writing, as more diplomatic, and as more subject to changing interests. Table XI refers to five items which were difficult to classify.

15. Do you usually object when a person steps in front of you in a line of people?

41. If you see an accident do you quickly take an active part in giving aid?

TABLE III

Extent to which the better salespeople tend to report themselves as more aggressive and more willing to assume responsibility

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
15	Yes	72	87	56	60
41	Yes	83	87	89	67
117	Yes	89	53	56	53

117. Do you usually try to take added responsibilities on yourself?

TABLE IV

Extent to which the better salespeople tend to report themselves as more social than do the poorer salespeople

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
35	Yes	67	73	56	53
61	No	44	33	33	27
83	Yes	72	60	44	53
94	Yes	78	80	44	53
103	No	78	80	78	60

35. Would you dislike any work which might take you into isolation for a few years, such as forest ranging, etc.?

61. Do you usually enjoy spending an evening alone?

83. Does your ambition need occasional stimulation through contact with successful people?

94. Do you ever take the lead to enliven a dull party?

103. Do you have difficulty in starting a conversation with a stranger?

12. Do you blush very often?

20. Do you feel self-conscious in the presence of superiors in the academic or business world?

42. Do you get stage fright?

TABLE V

Extent to which the better salespeople tend to report themselves as less self-conscious than do the poorer salespeople

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
12	No	78	67	44	53
20	No	56	60	56	33
42	No	61	80	56	53
96	No	72	87	67	60

96. At a reception or tea do you feel reluctant to meet the most important person present?

TABLE VI

Extent to which the better salespeople tend to report themselves as less desirous of telling others of personal good or bad fortune

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
53	No	50	27	22	27
81	No	100	80	89	67
107	Yes	89	87	56	73

53. Do you find that telling others of your own personal good news is the greatest part of the enjoyment of it?

81. Does admiration gratify you more than achievement?

107. Do you usually prefer to keep your feelings to yourself?

TABLE VII

Extent to which the better salespeople tend to report themselves as less resentful of criticism or discipline than do the poorer salespeople

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
119	No	89	73	56	53
123	No	89	67	67	73

119. Do you greatly dislike being told how you should do things?

123. Does discipline make you discontented?

TABLE VIII

Extent to which the better salespeople tend to report themselves as more radical and unconventional than do the poorer salespeople

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
1	No	72	60	44	53
99	Yes	17	13	0	7

1. Does it make you uncomfortable to be "different" or unconventional?

99. Do you tend to be radical in your political, religious, or social beliefs?

TABLE IX

Extent to which the better salespeople tend to report themselves as preferring face to face discussion rather than writing or reading

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
34	Yes	72	73	67	60
38	Yes	89	60	89	60

34. Can you usually express yourself better in speech than in writing?

38. Do you find conversation more helpful in formulating your ideas than reading?

TABLE X

Extent to which the better salespeople tend to report themselves as more diplomatic and more subject to changing interest

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
27	Yes	39	20	22	13
90	No	61	47	56	27

27. Do your interests change rapidly?

90. Do you try to treat a domineering person the same as he treats you?

TABLE XI

Unclassified questions the responses to which indicate differing tendencies of better and poorer salespeople

ITEM NUMBER	FAVORED RESPONSE	PER CENT OF GROUP GIVING FAVORED RESPONSE			
		BEST GROUP	ABOVE AVERAGE GROUP	BELOW AVERAGE GROUP	POOREST GROUP
23	Yes	56	47	0	33
45	No	83	93	89	67
98	Yes	78	87	44	73
111	No	72	60	67	60
118	Yes	39	33	22	20

23. Do you think you could become so absorbed in creative work that you would not notice a lack of intimate friends?

45. Have you ever had spells of dizziness?

98. Do you prefer a play to a dance?

111. Have you been the recognized leader (president, captain, chairman) of a group within the last five years?

118. Do you keep in the background at social functions?

SUMMARY AND CONCLUSIONS

The validity of personality inventories similar to the Bernreuter has often been questioned because of the possibility that individuals may attempt to give desirable answers rather than the answers that best describe themselves. This possibility is likely to limit the value of such inventories as instruments for selection although it should have little effect upon their value for purposes of guidance.

The individuals represented in this study were assured that their replies would be held strictly confidential and it is believed that there was a very general attempt to answer truthfully. In fact, there is some statistical evidence for this belief. Question 99 in Table VIII refers to radical beliefs.

There is an almost unanimous opinion that business houses dislike employees with radical beliefs. Yet, reference to this shows that 17 per cent of the best group and 13 per cent of the above-average group, or five of the best and better individuals, admitted radical views while none of the below average and only 7 per cent, or one individual, among the poorest group made this admission.

Table XII is an attempt to summarize the information contained in the preceding eleven tables. In the first column are shown the nine traits which seem to be most characteristic of the successful salesperson. In the second column is shown the number of test items which seem to confirm each trait. The third column is obtained by considering the below average and the poorest groups as a single combined group and com-

TABLE XII

Traits characteristic of the successful sales-person

TRAITS	NO. OF ITEMS CONFIRMING THE TRAIT	*EXTENT OF DIFFERENTATION WITH RESPECT TO TRAIT
		Per cent
Not moody and not subject to worry (Table I)	7	27
Self-confident and self-sufficient (Table II)	6	18
Aggressive and willing to assume responsibility (Table III)	3	15
Social (Table IV)	5	16
Free from self-consciousness (Table V)	4	17
Little tendency to talk about self (Table VI)	3	16
Not resentful of criticism or discipline (Table VII)	2	17
Radical and unconventional (Table VIII)	2	15

* The figures in this column are obtained by considering the below average and the poorest groups as a single combined group and comparing it with best and above average groups considered as a single group. The per cent of the former group giving the favored response is then subtracted from the per cent of the lattter group giving this response. The figures in this column represent the difference between these percentages.

paring it with the best and above average groups considered as a single group. The per cent of the former group giving the favored response is then subtracted from the per cent of the latter group giving this response. The figures in this column represent the difference between these percentages.

Only a few reports of studies of the relationship between personality and success have been published but some confirmation of the results of the present study may be found. Stead[3] states that the better salespeople included in his study showed a greater interest in people and were more stable and better balanced emotionally than were the poorer salespeople. Link[4] states that one of the most significant items in his study was the question, "Do you greatly dislike having people give you advice?" He reports that the desirable answer was, "No," confirming item 119 of the present study as indicated in Table VIII.

It is true that Link's study did not refer to salespeople or even to adults, which suggests the possibility that certain traits, may be fundamental to success for all ages and all occupations.

[3] Stead, William H., "The Department Store Sales Person," *Occupations*, Vol. 15, No. 6, p. 513.

[4] Link, H. C., "A Test of Four Personality Traits of Adolescents," JOURNAL OF APPLIED PSYCHOLOGY, Vol. 20, pp. 527–34 (October, 1936).

A NEW REVISION OF THE ARMY ALPHA EXAMINATION AND A WEIGHTED SCORING FOR THREE PRIMARY FACTORS

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ALTHOUGH the Army Alpha Examination has now reached its twentieth milestone, it is still often regarded as the standard indicator of mental level for adults and continues to serve its purpose where adult problems of vocational selection and counseling arise. For this reason it seems desirable to prepare and publish a new revised edition, making use of the technique of item analysis in the selection of the best items and eliminating many of the items that are now out of date or that refer unnecessarily to military affairs. Since mental-test progress seems at the present time to be moving into a phase in which attempts are made to measure primary abilities separately instead of a single omnibus variable like "intelligence," it is desirable to add this refinement in connection with Army Alpha. The new revision contains items that are diagnostic for students of the college level and that are graded empirically in difficulty from easy to difficult in a single test and yet items that on the whole possess the level of difficulty equivalent to that in the original Alpha examinations. The customary norms should therefore hold for the new revision. The weighted scoring for three independent factors or abilities enables us to find for an individual three scores in addition to his total score. This should make a fair beginning toward a differential appraisal of the individual's mental abilities, though to be sure it leaves us still a long way from a complete analysis of his strengths and weaknesses.

THE ITEM ANALYSIS

To be more explicit, the following remarks give an account

of the item analysis. Items from four earlier forms were included in the analysis; the original forms 5, 7, and 9, and the Bregman Revision.[1] These four forms had been most frequently given in the department of psychology at the University of Nebraska during the years 1920 to 1937, as demonstrations, for experimental purposes, and as scholastic ability tests for freshmen. For all except form 5, 400 test blanks were selected at random for this study, and of form 5, 200 papers were used. The 100 blanks having the highest and lowest scores (for form 5 the 50 highest and lowest) were selected on the basis of total Alpha score. For every item was determined the proportion of the high group passing it, the proportion of the low group, and also the proportion of the two groups combined as an indicator of level of difficulty.[2]

In every form there were a small number of negative differences in proportions, that is, more of the low group who attempted an item passed it than of the high group. There were a larger number of zero differences. Many zero differences were due to the fact that 100 per cent of both high and low groups passed the item. Eliminating in addition to these items those that yielded insignificant differences we can see how many "good" items each form has left. The essential data are given in Table I.

TABLE I

A Comparison of the Four Forms of Army Alpha as to Numbers of Acceptable and Unacceptable Items

	FORM 5	FORM 7	FORM 9	BREGMAN REVISION
Negative Differences	3	5	9	18
Zero Differences	24	4	12	18
Acceptable	185	203	191	176

Table I speaks for itself. In view of the fact that so many items are passed by everybody at the college level it should

[1] Elsie O. Bregman, Revision of Army Alpha Examination. New York: Psychological Corporation, 1931.

[2] For this statistical work I am indebted to the student N. Y. A. assistance.

be no surprise to find as many as 24 zero differences in one of the forms. One might expect by chance a sprinkling of negative differences among the same list of very easy items, though the negative differences were not by any means actually confined to the easiest items. Negative differences were most numerous in tests 3 (common sense) and 8 (information). It is a little surprising to find that the Bregman revision has the largest number of unacceptable items. Her items were said to be selected on the basis of an "order of merit" procedure,[3] which is of course a different approach than the one described above.

The study of item difficulty is of some interest. The original founders of the Alpha examination attempted to grade the items in difficulty from very easy at the beginning of a test to very difficult at the end. They probably succeeded better than they had hoped. When the proportions of successes in all forms of a test are plotted against the positions of the items in the test, the regression is negative and curvalinear, with a positive acceleration. The form of the regression can very readily be ascertained, but the correlations between position in the test and difficulty are not high. For every one of the eight tests a line of regression was drawn by inspection, and in the construction of the new revision, for every position in any test was selected an item of that particular level of difficulty. The gradation of increasing difficulty should therefore be more accurately maintained than in any of the previous forms. One cannot argue, of course, that the order of difficulty will be the same for every individual; an order can only be established for the "average" person, who does not exist. But in the older forms, for the average testee of our groups the items were not in perfect rank order by any means.[4]

The Scoring of Factors *V*, *N*, and *R*

The scoring for three primary factors is based upon a factorial analysis by Thurstone's centroid method as previously

[3] *Op. cit.*

[4] The new revision is to be published and to be made available to testers at an early date.

reported by the writer.[5] The three factors were labeled *V*, *N*, and *R*, using letters rather than words because it was felt that the precise nature of the factors is as yet unknown. *V* stands for "verbal" because it is prominent in tests 4 (opposites), 5 (mixed sentences), and 8 (information) in particular, and absent in tests 1 (directions) and 6 (number series) and to a large extent in 2 (arithmetic). The thing that distinguishes these two groups most obviously is the fact that the second group is less verbal in character whereas, in the former, understanding and use of words is at a premium. *N* stands for "numerical" since it is prominent in tests 2 and 6 and is practically non-existent in tests 4, 5, 7, and 8. *R* stands for "relations" since it is prominent in the tests involving simple logical relationships, for example tests 7 (mixed relations), 1, and 6. However these abilities may eventually be described or defined, they are by all the assumptions of factor theory independent and fundamental to individual differences of an intellectual nature. An individual may stand high in one of them and he may stand anywhere in the other two. This being true, it is of great importance that we know where he stands in all three. The total Alpha score is a composite indicator of all three. A testee may have a high Alpha score by reason of being a genius in one of the three and just average in the others, by being very good in two though below average in the third, or by having moderately high amounts of all three.

While the isolation of primary abilities is a problem that we can say has been solved with a certain degree of satisfaction, the scoring of individuals for those abilities separately is not yet accomplished with the same success. The trouble is that no test is entirely pure, that is to say, dependent upon one primary ability and only one. So when we score a single homogeneous test, even this score is "contaminated" with more than the one factor that we are trying to gauge. The best hope is to find a pool of tests such that every test has in com-

[5] J. P. Guilford, Psychometric Methods. New York: McGraw-Hill Book Co., Inc., 1936, 491–507.

mon the factor we wish to measure plus another factor or factors none of which the other tests in the pool hold with it in common. Summating the scores in the pool should, we hope, cancel out the effects of the other "foreign" factors, leaving the residual of truth concerning the factor in which we are interested. A practical difficulty also arises when, to save time and energy, we attempt to score the same test for more than one common factor that it contains. This is bound to introduce intercorrelations among the factor scores when by assumption those factors are uncorrelated.

These difficulties beset anyone who attempts to measure independent factors with the eight tests of Army Alpha. Only tests 4, 5, and 8 are relatively pure for factor *V* and have almost nothing else in common. Other tests contain at least two of the factors *V*, *N*, and *R*, and so some degree of intercorrelation among the factor scores is bound to creep in even if, as was suggested, we avoid scoring any test for more than one factor. The scoring to be suggested should therefore be regarded as merely an approach to the measurement of independent, primary abilities.

The procedure of finding the weights to be applied to the different test scores when pooling them for any factor was the usual multiple correlation method. Each factor was taken in turn as the dependent variable and regression equations were worked out for predicting it from groups of the Alpha tests. The factor loadings of a factor in the tests were taken as the "validity coefficients" as in the usual multiple correlation procedure. At first, every test that had any appreciable factor loading was included among the pool of independent variables. It was often found that those tests with the lowest factor loadings came out with zero or even slightly negative regression weights. The multiple regression equation was again computed, eliminating those "weak" tests. This process was repeated, computing a multiple *R* each time, until the minimum number of tests for predicting the factor score was reached, that is, until there was a drop in the multiple *R* that

could not be ignored. This elimination was carried on not only to drop those tests with insignificant regression weights but also to escape having to score the same test for more than one factor if this could be avoided. In determining the regression weights, a standard deviation of 10 was assumed for the factor "scores." This could have been any convenient number. The results finally arrived at are summarized in Table II.

TABLE II

Regression Weights to be Given each Test in Predicting each Factor Score, Coefficients of Multiple Correlation, and the Simple Weights Adopted

TEST	COMPUTED REGRESSION WEIGHTS IN FACTORS:			SIMPLE SCORING WEIGHTS		
	V	*N*	*R*	*V*	*N*	*R*
1			.853	0	0	1
2		2.731		0	3	0
3	.517			1	0	0
4	.687			2	0	0
5	.667			2	0	0
6		.806		0	1	0
7			.831	0	0	1
8	.359			1	0	0
Multiple *R*	.854	.835	.817			
R^2	.729	.697	.670			

The multiple *R*'s may be regarded as validity coefficients when the factors are taken as perfect criteria. The multiple *R*'s squared indicate what percentage of the test-pool variance is to be attributed to variance in the factor in question. Thus, about 73 per cent of the variance of the pool of tests 3, 4, 5, and 8 when weighted according to the computed regression coefficients of Table II, is variance in factor *V*. The remaining 27 per cent is variance due to other factors in the tests and to errors of measurement. Any tests with validity coefficients as high as the three *R*'s in Table II would be regarded as highly successful tests. This high validity assumes an intention to measure the factors in individuals and has no prac-

tical importance beyond this fact. What practical gain there may be in measuring an individual's separate factors is for the future to decide.

The interpretation of an individual's factor scores must be made with reference to norms. Raw scores mean even less in this case than usual because we wish to make cross comparisons between the factors. I am able to present norms only for the select population at the college level, and then only for a sampling of University of Nebraska students. Two hundred test blanks were selected at random from among those obtained in classes in elementary psychology and scored for factors *V*, *N*, and *R*. Percentile norms were set up on the basis of smoothed cumulative frequency distribution curves. These are suggested as tentative norms for students primarily at the sophomore and junior levels. They will at least suggest equivalent scores in the different factors. Note Table III. The medians (50 percentiles) are 133, 48, and 43, respectively. A student who makes these three scores would be said to have

TABLE III

Percentile Norms in Scores for Factors V, N, and R in the Army Alpha Examination

PERCENTILE	*V*	*N*	*R*
.99	178	69	52
.95	164	62	51
.90	154	59	50
.80	149	55	48
.70	144	53	47
.60	139	50	45
.50	133	48	43
.40	126	46	41
.30	119	43	38
.20	110	40	35
.10	98	36	31
.05	84	32	27
.01	70	25	18

just average amounts of the three factors. A student making scores of 164, 62, and 51 for factors *V*, *N*, and *R*, respectively would be classed as equally superior in all three. Whether or not the same scores are equivalent for other populations is not known. It is possible that students are superior in factor *V*, let us say, to non-students of this age, whereas they might be no higher in ability with respect to factor *N*. Such a table of equivalent scores should be set up for different types of populations with which the test is used.

STUDIES IN THE RELIABILITY OF PERSONNEL RECORDS

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A STUDY was made at a public employment office in Ohio to determine the reliability of some items commonly included in personnel records. Height and weight were selected for the first experiment. They were chosen because a true measure of each could be obtained, and because they are useful in selecting employees for certain jobs such as insurance salesmen and department store sales people.

The procedure used was as follows: applicants registering for clerical work filled out the ordinary registration form and then were interviewed and classified. During the interview all items in the application were carefully inspected to insure completeness. The applicants were interviewed in a private office where they were weighed and measured.

Tabulations were then compiled between the values given on the registration record and the true measures. The weights were in intervals of 5 pounds, and the heights in intervals of 1 inch. An adjustment was made for height of heels. It can be seen that the discrepancies in records were not mere fractional errors.

Since the deviations of the heights and weights stated on the records may not always be chance errors, tabulations were made of the deviations. An examination of these tabulations shows that 50 per cent of the women stated their height correctly; while 40 per cent understated their height, and 10 per cent of them overstated their height. With regard to women's weights,

* This study was carried on while the writer was supervising the registration division of the Cincinnati Employment Center.

50 per cent stated their weight correctly, 30 per cent understated, and 20 per cent overstated their weights. If we may generalize on this sample, we find, then, that women portray themselves as smaller than they really are.

As for the tabulations of the deviations for the men's heights, 60 per cent were recorded correctly, 22 per cent understated, and 18 per cent overstated. There seems to be no important difference with respect to under- or overstatement for men's height. Of the men, 45 per cent recorded their weight correctly, 25 per cent understated, and 30 per cent overstated. In this last instance we find that some men like to overstate their weights 20 to 30 lbs. The greater deviations were understatements.

All these applicants were over 21 years of age and so the relationship of age to height or weight was of little significance. The highest correlation between age and any of the variables was .40.

	Estimated coef. of reliability
Actual height of 156 men correlated with recorded height .96 ± .004	.92
Actual weight of 156 men correlated with recorded weight .91 ± .009	.83
Actual height of 120 women correlated with recorded height .90 ± .010	.82
Actual weight of 120 women correlated with recorded weight .95 ± .006	.91

These correlations are correlations between a fallible score and a true measure, hence they represent the index of reliability and not the well-known coefficient of reliability. Mathematically the coefficient of reliability equals the square of the index of reliability. For interpretation in the usual manner, the correlations are squared to give coefficients of reliability, and are .92, .83, .82, and .91, respectively. Men report height more accurately than weight, while the reverse is true with women. Since women are more accurate in reporting weight

than height, it may be that they are not intentionally giving misleading information but that they may know their weight more accurately than they know their height. In one case, however, a man confessed that he reported his weight about 30 pounds less than correct, as he knew he was overweight.

To determine the accuracy of the ages applicants give when registering at the public employment office, two samples of junior applicants were studied. From the personnel record was taken the applicant's date of birth and compared with the date of birth which he had given the school authorities. The latter had been verified in many cases with the bureau of vital statistics. In this instance correlations were not used. Instead a distribution is shown of the frequencies of correct ages, and incorrect ages.

In all cases except one these youths are attempting to make themselves older than they really are according to school records. The one exception is a young man who worked in our office and probably wanted to be more intelligent than he really was. From the table it is quite evident that it is intentional to add a year or two to the age. The other discrepancies are often 1, 10 days, and whole months. One case was a change from 10/12/18 to 12/10/18 which may be a clerical mistake.

These data are important since they show young people are attempting to secure work by falsifying ages. To prevent errors employers can and do require birth certificates. In later ages the falsifications are reversed and many applicants attempt to become younger by giving different ages on different occasions. And there is no means of definitely disproving their claims since registration of births was not established in Ohio until recently.

Recently the Bureau of Labor Statistics has asked the public employment offices to report daily the dates of birth of persons registering at public employment offices. An early summary of such reports for Ohio shows that the number of people born in 1900 is more than one third larger than the number born in any of the following years: 1897, 1898, 1899, 1901, 1902, 1903.

	FIRST SAMPLE	PERCENTAGE	MALES	PERCENTAGE	FEMALE	PERCENTAGE
Correct	265	86.6	122	76.7	124	83.2
Incorrect	41	13.4	37	23.3	25	16.8
less than 1 yr. error	5	1.6	5	3.1	4	2.7
1 yr. error	26	8.5	22	13.8	18	12.1
more than 1 yr. error	1	.3	0	———	0	———
2 yrs. error	5	1.6	8	5.0	2	1.3
3 yrs. error	4	1.3	1	.6	1	.7
4 yrs. error	0	———	1	.6	0	———
Total	306	100.0	159	100.0	149	100.0

Thus it can be seen that mistakes in reporting ages is not confined to young people.

It can be seen that these simple items of personal history are not sufficiently reliable for purposes of individual diagnosis. The subjects of the experiment were clerical and professional workers who can be expected to have a better knowledge of their personal history than most applicants. Simple facts are generally remembered better than more complicated items such as employment history, so one cannot help wondering how reliable is the record of experience upon which so much emphasis is placed by many employment managers. Unless such information is reliable, it cannot be valid or useful.

Studies to demonstrate the reliability and validity of other items in personnel records are needed. Experiments directed toward the improvement of personnel records may greatly aid personnel management in becoming more precise than our observations indicate it now is.

DEPENDABILITY OF PSYCHOLOGICAL BRAND BAROMETERS

II. THE PROBLEM OF VALIDITY

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Editor's Note: **This study by Jenkins and Corbin is one of the three studies in the problem of validity in respect to the Psychological Brand Barometers. The other two studies, not yet reported, used the pantry inventory method to check with the interviews. It was found that the pantry inventory is a decidedly inadequate measure of people's most recent purchase, and therefore of little use as a basis for computing the validity of the Brand Barometers. In these studies of validity, the problem is not merely one in respect to the validity of the Brand Barometers, but involves the accuracy of the criterion used to measure validity, as is implied in the present study.**

IN a recent article,* the senior author reported the results of an investigation regarding the reliability of last-purchase questions of the type employed in the Psychological Brand Barometer. In this investigation it was found that a second set of interviews with the same sampling of respondents after a lapse of 48 hours yielded an index of reliability of .90. In other words, respondents showed a marked tendency to be consistent in naming the brands of commodities most recently purchased.

* Dependability of Psychological Brand Barometers: I. The Problem of Reliability. *This Journal*, 1938, 22, 1–7.

These two studies were made possible by a grant-in-aid from the Psychological Corporation. Both were carried on while the authors were at Cornell University.

The question of validity was still to be answered. In one sense, of course, it is unnecessary to attempt to measure validity: if those who work with the Barometer are content to specify that they are correlating other factors only with respondents' answers, perfect validity is inherent in the answers themselves. If, on the other hand, they assume that the brand named as purchased can be used as an index of the brand actually purchased, the validity of the assumption must be tested empirically. It is theoretically possible for this method —or any other, for that matter—to rank high in practical utility while standing very low in validity as measured by covariability with the assumed criterion. Thus the fact that the Barometers have shown high utility in predicting sales trends cannot be regarded as demonstrating *ipso facto* that responses to these questions accurately reflect individual purchases. In order to show that the practical utility of the method does not rest on adventitious factors, it is necessary to investigate empirically the relationship between answers on last purchase questions and actual last purchases of an adequate sampling of respondents.

At the outset the method of measuring this relationship appeared to be fairly simple and straightforward. One had only to obtain responses to last-purchase questions and then to compare these responses with objective records of actual purchases—apparently an easy enough assignment. It was first suggested that data on actual purchases should be collected by means of a pantry-survey, but this method was not adopted because a survey in a small sampling of homes showed that in many cases more than one brand was present on the shelf. In order to determine which had been bought most recently, one would have had to rely on the housewives' word, thus introducing undesirable subjective factors.

It was finally decided to check against the most direct system of objective records available—the daily sales-slips of a local store. Realizing that the regular Barometer questions were frequently concerned with items bought only at long intervals,

we sought to establish a list of articles bought at short intervals at this one store, hoping thus to avoid endless checking of sales-slips. A questionnaire was finally formulated containing only questions regarding commodities which satisfied the criterion of frequency of purchase. The merchant then supplied a list of customers who bought most of their requirements in his store, and a group of trained undergraduate interviewers carried our questionnaire to the homes on this list.

The completed questionnaires were then checked against the entries on the sales-slips—and the attempt was abandoned after the check had been completed. In the interest of future investigations we cite the reasons which made it necessary to discard the data thus laboriously collected:

(1) The merchant had supplied only names of those who supposedly bought most of their requirements from him, but events proved that he had overestimated the loyalty of his clientele. The questionnaire required the respondents to state where they had purchased each article, and they named other stores in so many cases as to reduce the useful data almost to the vanishing point.

(2) The book-keeping system of this particular store exhibited a curious lack of objectivity. An entry reading simply "Corn Flakes," we were told, always meant X-Brand Corn Flakes. This notation was followed, we found, except in the case of certain regular customers, for whom it meant the brand habitually purchased, which might be the A-, B-, or Z-Brand. The clerks expressed surprise, indeed, that anyone should question the comprehensibility of such a system!

Having discarded this first set of data, we sought to find a store which possessed a more reliable group of regular customers and a less cryptic system of recording purchases. The cooperation of the store* finally selected was an important

* Grateful acknowledgment must be made to the managers and to the office force of *Atwaters Store* of Ithaca, N. Y. Their cheerful and intelligent cooperation made it possible to carry out effectively the prolonged checking necessary in a study of this type.

factor in making this study possible. With the aid of their office force, a questionnaire dealing only with items frequently purchased was made up. After preliminary revisions, the questionnaire finally assumed the form shown in Figure 1.

FIGURE 1

Last-Purchase Questionnaire

Name of respondent..... Address.....

	Brand	*Store*
1. What brand of coffee did you buy last?	.....	.....
2. What brand of butter did you buy last?	.....	.....
3. What brand of washing soap did you buy last?	.....	.....
4. What brand of crackers or cookies did you buy last?	.....	.....
5. What brand of bread did you buy last?	.....	.....
6. What brand of flour did you buy last?	.....	.....
7. What brand of hot or cold cereal did you buy last?	.....	.....
8. What brand of package dessert did you buy last?	.....	.....
9. What brand of cheese did you buy last?	.....	.....
10. What brand of canned soup did you buy last?	.....	.....
11. What brand of canned vegetable did you buy last?	.....	.....
12. What brand of canned fruit did you buy last?	.....	.....
13. What brand of mayonnaise or salad dressing did you buy last?	.....	.....

.....Interviewer

The selection of respondents was carried out in the following fashion. More than 1,000 accounts were examined for the months of February and March, 1937, with the aim of selecting only those respondents who had purchased at least nine of the thirteen listed articles at this store during that two months' period. In all about 120 accounts were found which satisfied these criteria and which the store manager indicated as current heavy purchasers. Undergraduates with previous experience at Barometer interviewing were instructed in the use of our last-purchase questionnaire and were then sent to all of the names on this list.

As in the study of reliability, the interviews proved easy to obtain; despite such diluting influences as temporary absence from town, illness, and rare cases of direct refusal to submit to an interview, 96 of the 120 respondents granted complete interviews. Inspection of the resulting blanks showed that 26 respondents did not report any purchases at this store when asked to specify place of purchase, and their blanks were accordingly set aside. The remaining 70 interviews satisfied our criteria and were used to supply the data reported in this paper. In all cases the number of interviewees who purchased a particular commodity falls somewhat below 70, for no customer had bought all thirteen items at this store as his most recent purchase. For nine of the thirteen items the number of respondents actually reporting is more than 50; in three cases, the number reporting was between 40 and 50; and in one case (canned fruit) it dropped to 34. All of these figures are large enough to be significant in a preliminary study of this sort.

The data on percentage of agreement ("validity index") are shown in Table I. An entry of 100 per cent for bread

TABLE I

Showing Percentage of Agreement between Brands Reported as Last Purchased and Sales-slip Records of Actual Last Purchases

COMMODITY	PERCENTAGE OF AGREEMENT
Bread	100
Salad dressing	93
Canned soup	90
Coffee	88
Butter	84
Canned fruit	78
Soap	72
Canned vegetable	71
Crackers	70
Cereal	70
Package dessert	67
Cheese	63
Flour	62
Mean	77.5
A.D.	10.4

means that 100 per cent of the respondents named as their most recent purchase the brand of bread actually shown as bought on their respective sales-slips. Likewise, an entry of 70 per cent for cereal means that 70 per cent of the respondents named the brands shown as purchased on sales-slips, while 30 per cent named brands other than those shown on the slips.

From these results it is obvious that the indices of validity do not exhibit the uniformity from product to product that was characteristic of the figures for reliability. The latter grouped in striking fashion around the average figure of 90 per cent (A.D. 1.8): there was little to suggest that reliability of response was to any extent a function of the product under consideration. The indices of validity show no such apparent grouping; the wide range and relatively high A.D. (10.4) seem to show that there is wide variation from commodity to commodity in the accuracy with which our respondents reported their actual brand-purchases. Although the range is wide enough to suggest that separate determinations of validity must be made for each type of product, the general average of these figures for validity is encouragingly high (78 per cent).

Consideration of these results suggests the theory that the variation in validity may simply be a function of the number of brands available in each category. That is to say that bread may have obtained its high index of validity (100 per cent) because the store handled only one brand and flour its low index (62 per cent) because the customers could choose among many brands. If this position be tenable, we shall expect to find a high inverse relationship between the number of brands reported as bought and the respective indices of validity. A glance at Table II will suffice to show that no marked relationship obtains. The data unfortunately do not lend themselves to the computation of a rank-order correlation, but it will be noted that the highest index is obtained for bread with six brands named as bought and the lowest for flour with the same number of brands. The larger numbers do tend toward the

lower end of the table, however, as may be seen from the fact that the first six items average 6.67 brands named as bought, while the last six items average 10.2 brands.

TABLE II

Comparing Rank Order of Validity-indices with Number of Brands Named as Bought

COMMODITY	RANK ORDER OF INDICES OF VALIDITY	NUMBER OF BRANDS REPORTED AS BOUGHT
Bread	1	6
Salad dressing	2	7
Canned soup	3	4
Coffee	4	13
Butter	5	3
Canned fruit	6	7
Soap	7	14
Vegetables	8	8
Crackers	9.5	10
Cereal	9.5	17
Dessert	11	6
Cheese	12	14
Flour	13	6

A more fruitful course is suggested when we examine the theory that respondents are most accurate in naming brands in the case of items for which one or two brands dominate the purchases. If, for example, we arbitrarily set our standard of dominance by describing as dominant any brand which was named as bought by more than 20 per cent of the respondents, the results are as shown in Table III. The percentages for the first six items tend to run higher than the percentages for the last six items. Again to employ our crude method of comparison, we note that the average per cent of dominance for the first six items is 78.5 per cent, while the average for the last six items is 48.0 per cent.

Neither of the relationships just under consideration approaches a simple straight-line progression. Taken in combination, however, they do suggest that the variation in the correctness with which people name the brands last bought may be influenced both by the number of brands available and by the dominance of certain leading brands of those commodi-

TABLE III

Showing Relationship between Dominance Among Brands and Indices of Validity*

COMMODITY	RANK IN VALIDITY	NUMBER OF DOMINANT* BRANDS	PERCENTAGE OF TOTAL REPRESENTED BY DOMINANT* BRANDS
Bread	1	1	78
Salad dressing	2	3	84
Canned soup	3	2	80
Coffee	4	2	57
Butter	5	2	98
Canned fruit	6	1	74
Soap	7	1	23
Vegetable	8	1	60
Crackers	9.5	1	30
Cereal	9.5	0	0
Dessert	11	1	58
Cheese	12	1	63
Flour	13	2	77

* A brand is described as *dominant* if it was named by 20 per cent or more of the respondents.

ties. There is nothing to suggest that the commodities lend themselves to any regular grouping with regard to validity and nothing to imply that *a priori* statements regarding validity would carry much significance. All of our data seem to point to the conclusion that independent determinations of the accuracy of report must be made for each commodity if it is necessary to take this into consideration.

CONCLUSIONS

A previous investigation has shown that last-purchase questions have very high reliability; that is, that respondents tend strongly to name the same brand when asked to repeat their answers to last-purchase questions. In the investigation here reported, the degree of agreement between brands named as last purchased and objective records of actual purchases has been shown to vary over a wide range. In the main, indices of validity obtained in this manner tend to run high: of the 13 commodities studied ten show validity-indices above 70 per cent and none falls below 60 per cent. There is some evidence to show that the degree of correspondence varies with the num-

ber and dominance of the brands concerned. The two studies are taken jointly to show that, while one may safely assume the *reliability* of last-purchase questions, empirical investigation is necessary for each product whenever it becomes desirable to deal with *validity*.

It should be noted that the indices of validity reported in this study are probably reduced to some degree by the fact that housewives may have made more recent purchases at some store other than the one they reported. It was necessary to assume the correctness of their report as to place of purchase in order to use the method we employed.

ASPECTS OF SOCIO-ECONOMIC STATUS WHICH DIFFERENTIATE UNIVERSITY STUDENTS*

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SINCE intelligence tests have come into common use in the study of individual differences in ability there has been a tendency to stress heredity as the basis of achievement and to neglect or minimize the importance of environmental influences. And, yet, more and more studies tend to show the important role played by environment, particularly home influences, in the development of habits, character and personality and, consequently, in the achievement of an individual. While the results of intelligence tests serve as an index of the level of ability which an individual may possess, the way in which his ability will be expressed is determined largely by environment and training.

Various techniques have been devised which purport to measure certain aspects of home environment to supplement intelligence test scores in analyzing individual differences. One of the most valid measures at present available for determining the socio-economic level of the home is Sims Scale for Socio-Economic Status (2). In a recent study by the writer (1) the Sims Scale was used with a group of high school pupils. The results showed consistently higher scores on this scale for pupils who were graduated from high school than for those who withdrew. The differences between the Sims scores for the two groups were far greater than corresponding differences on both the intelligence and the achievement tests. This finding

* The writer wishes to acknowledge the help of Miss Helen Oberg in compiling the data and checking the statistical work for this study.

prompted a more extensive study to check the significance of socio-economic scores in differentiating students. Since the Ohio State University Test is administered to all seniors in Wyoming high schools near the close of their last semester in high school, it seemed expedient to use the data thus secured. This means was suggested by noting that the personal information sheet accompanying the test includes a number of items identical to those found in the Sims Scale and several similar items.

The subjects used in the present study were the Wyoming high school seniors who took the O. S. U. Test, Form 18, during the spring terms of 1935 and 1936 respectively, plus the freshmen, largely from out of state, who took the test upon entering the University of Wyoming the succeeding autumns. The students for each year were divided into four subgroups as follows: (1) Wyoming high school graduates who enrolled at the University of Wyoming, (2) Wyoming high school graduates who enrolled in out-of-state colleges and universities, (3) Wyoming high school graduates who did not continue higher education the following fall, and (4) students from out-of-state who enrolled at Wyoming for the fall quarter.

Since the number of students who did not continue advanced training the succeeding fall was larger than the number who enrolled at the University of Wyoming and out-of-state, a sampling of this group was taken. In selecting the sampling each subject was paired with a subject in either of the first two groups on the basis of the high school from which he was graduated and on sex. To illustrate, the first group in the 1936 class was made up of 494 Wyoming high school graduates who enrolled at the University of Wyoming in the fall of 1936. The second group comprised 221 Wyoming high school graduates who enrolled out of state. To serve as a basis of comparison a third group of Wyoming high school graduates who did not attend any institution of higher learning the following fall was selected. This group consisted of 715 subjects, equal to the total number in the first two groups, who were matched with

the subjects in these groups on the basis of high school and sex. The fourth group was made up of 122 students from out of state. Data were thus compiled for a total of 2610 students for the two years.

The personal information sheet accompanying the O. S. U. test includes more than fifty items. These items were compiled with respect to the percentage of possession or non-possession for each subgroup. In deriving a composite score of socio-economic status only those items were used which showed consistent trends for the four subgroups in the percentage of possession or non-possesion of the given items. Fifteen items were selected. Five of the items which were identical to items found in the Sims Scale were as follows: possession in the home of telephone, bathroom, furnace; room-person ratio; and occupation of the father. The ten remaining items were the following: family financially able to bear the cost of a college education, family willing to bear the cost of a college education, rent or own home, amount of rent paid or estimate of rental value of home, average number of days housework hired per week, washing done "at home" or "at laundry," ironing done "at home" or "at laundry," possession of electric or gas washer, vacuum cleaner and radio. In general the methods adopted for the Sims Scale were used in scoring the separate items.

On the basis of the fifteen items selected a composite socio-economic score was determined for each of the 2610 subjects. The highest score possible on the scale is 54. The subjects for 1935 and those for 1936 were not combined in the subgroups utilized in making the comparisons in order that the two sets of data might serve to check the reliability of the findings. The data presented in the following tables are for the 1936 subgroups since sixty per cent of the subjects were in that group. However, the data for the 1935 subgroups agree, in general, with the findings for the 1936 subgroups and tend to verify the conclusions drawn.

Statistically significant differences were found between the mean socio-economic scores for many of the subgroups for both

TABLE I

Means and Standard Deviations for the Socio-Economic and for the O. S. U. Test Scores, 1936 Groups

GROUPS		1 WYO. H. S. GRADS. WHO ATTENDED UNI. OF WYO.	2 WYO. H. S. GRADS. WHO ATTENDED UNI. OUT-OF-STATE	3 WYO. H. S. GRADS. WHO DID NOT ATTEND UNIV.	4 OUT-OF-STATE STUDENTS AT UNIV. OF WYO.
Number		494	221	715	122
Socio-Economic Scores	Mean	26.30	28.56	31.27	28.77
	S. D.	9.26	9.90	8.56	9.36
O. S. U. Test Scores	Mean	72.93	74.24	59.03	72.09
	S. D.	22.45	22.85	19.40	23.30

years. The means, standard deviations and critical ratios for the socio-economic scores and for the O. S. U. test scores for the 1936 groups are shown in Tables I and II. Highly reliable

TABLE II

Critical Ratios for the Socio-Economic and the O. S. U. Test Scores

DIFFERENCE	C. R. SOCIO-ECONOMIC SCORES	C. R. O. S. U. TEST SCORES
$M_1 - M_3$	9.58	11.18
$M_2 - M_3$**	9.87	8.95
$M_4 - M_3$	7.82	5.85
$M_2 - M_1$	2.88	0.71
$M_4 - M_1$	2.61	.....*

* $M_4 - M_1$ results in a negative difference for the O. S. U. test scores.

** The subscripts refer to the four subgroups as numbered in Table I.

differences were found between the mean socio-economic scores for each of the three groups who attended university as compared with the group who did not continue their education beyond high school. These differences were as reliable as were the differences in the means of the O. S. U. test scores for the same groups. Fairly reliable differences were also found between the first two groups, i.e., for Wyoming high school graduates who attended the University of Wyoming and those who attended colleges and universities out of state. The critical ratio is 2.88. The critical ratio for the first and fourth groups, namely, students attending the University of Wyoming from Wyoming high schools and those attending the university from out-of-state is 2.61. The critical ratios for the means on the O. S. U. test scores for the last two comparisons are negligible.

These findings tend to suggest that socio-economic status as measured for this study is more predictive in Wyoming for determining attendance at a university out-of-state than is the level of intelligence. At least, this seems to be true for the two years covered by the study. The general economic situation in the country which continued through 1935 and well into 1936 may have influenced these figures. Since all of the items

TABLE III

Means and Standard Deviations for the Socio-Economic and for O. S. U. Test Scores for Enrollments by Colleges

COLLEGES		1 EDUCATION	2 AGRICULTURE	3 ENGINEERING	4 COMMERCE	5 LIBERAL ARTS
Number		106	75	103	96	189
Socio-Economic Scores	Mean	24.05	24.57	26.07	26.99	29.00
	S. D.	9.50	9.50	11.75	9.45	9.40
O. S. U. Test Scores	Mean	70.06	64.82	75.46	69.31	76.37
	S. D.	21.75	20.30	25.05	20.05	19.15

in the socio-economic score bear directly or indirectly on economic factors of the home it would seem that the financial status of the home is an important factor in selecting a university in or out of Wyoming. The data are inadequate to verify this finding for other states.

All freshmen attending the University of Wyoming in the fall of 1936 were then divided into subgroups by their enrollment in the various colleges. Means, standard deviations, and critical ratios were determined. Some of these critical ratios were fairly or highly reliable. As shown by Tables III and IV

TABLE IV

Critical Ratios for the Socio-Economic and the O. S. U. Test Scores for Enrollments by Colleges

DIFFERENCE	C. R. SOCIO-ECONOMIC SCORES	C. R. O. S. U. TEST SCORES
$M_5 - M_1$	4.31	2.49
$M_5 - M_2$**	3.43	4.24
$M_5 - M_3$	2.18	0.32
$M_5 - M_4$	1.70	2.85
$M_4 - M_1$	2.20	.....*
$M_4 - M_2$	1.66	1.44
$M_4 - M_3$	0.61	.....*
$M_3 - M_1$	1.36	1.66
$M_3 - M_2$	0.94	3.13

* Negative difference.

** Subscripts refer to colleges as numbered in Table III.

the differences in the means of the socio-economic scores seem to be as significant as corresponding differences on the O. S. U. test scores. However, the differences vary on the two scores for the various colleges. Significant differences were found between the mean socio-economic scores for students enrolled in the College of Liberal Arts and in the College of Education and also for Liberal Arts and Agriculture. The differences were significant, also, for the means of the O. S. U. test scores for the students enrolled in Liberal Arts and Agriculture, and for Engineering and Agriculture. The critical ratios for the

remaining comparisons were only fairly reliable or wholly unreliable for both of the scores.

Those colleges which have the lowest mean socio-economic scores afford greater promise of immediate employment and financial returns in Wyoming than do those colleges with higher mean scores. That is, the lowest mean socio-economic scores were found for students enrolled in Education and Agriculture. Many students are able to secure positions in Wyoming in either of these fields after a year or even less of training. On the other hand, the highest mean socio-economic score was found for the College of Liberal Arts which does not train students for any specific vocations.

The 1936 freshmen who completed at least two quarters of work were compared with the freshmen who withdrew during either the first or the second quarter. Table V shows that the

TABLE V

Means, Standard Deviations, and Critical Ratios for the 1936 Freshmen Who Completed at Least Two Quarters of Work, and for those Who Withdrew During the First or the Second Quarters, 1936–1937

GROUPS		FRESHMEN COMPLETING TWO QUARTERS OF WORK	FRESHMEN WHO WITHDREW	C. R.
Number		529	84	.....
Socio-Economic Scores	Mean	27.84	24.60	.....
	S. D.	10.00	9.20	2.96
O. S. U. Test Scores	Mean	73.20	61.25	.....
	S. D.	21.65	20.50	4.93

difference in the means for the socio-economic scores is fairly reliable but the difference in the means of the O. S. U. test scores is more significant. These figures suggest that the socio-economic score is not as predictive of continuation in college as is the O. S. U. test score.

Since the critical ratios for all subgroups on both scores were somewhat similar to those for the O. S. U. test scores an attempt was made to determine to what extent both scores depend on the

same factors or have a similar influence on a given factor. The Pearson correlation technique was used. (Table IV). The

TABLE VI

Correlations Between Socio-Economic Scores, O. S. U. Test Scores and Academic Averages for University of Wyoming Freshmen, 1936

	O. S. U. TEST SCORE	ACADEMIC AVERAGE
Socio-Economic Score	−.03	−.15
Academic Average	+.50	.....

coefficient of correlation between the socio-economic scores and the O. S. U. test scores for freshmen at the University of Wyoming was −.03. For Wyoming high school graduates who did not continue their education the following fall the coefficient of correlation was +.09. The coefficient of correlation between the academic average of Wyoming freshmen and socio-economic scores was −.15, while between academic average and O. S. U. test scores the coefficient was +.50. Thus the socio-economic scores and O. S. U. test scores seem to have little in common. The means and critical ratios for the enrollment by colleges also support this conclusion.

CONCLUSIONS

In the light of the foregoing data the following tentative conclusions seem justifiable: (1) the socio-economic scores as determined for this study tend to differentiate students who continue higher education immediately after being graduated from high school from those who do not about as reliably as do the O. S. U. test scores, (2) the socio-economic scores are more useful than the O. S. U. test scores in differentiating Wyoming students who continue higher education in their home state from those who attend universities or colleges in other states, (3) the socio-economic scores are almost as valuable as the O. S. U. test scores in differentiating students by enrollment in the various colleges in Wyoming, (4) the socio-economic scores

appear to be a fairly reliable measure for differentiating university freshmen who complete at least two quarters of work from those who withdraw during the first or second quarters. However, they are not as reliable for this purpose as are the O. S. U. test scores. (5) The socio-economic score is quite independent of the O. S. U. test score. It could not be used as a substitute for the test score since it is not predictive of academic success; however, it might prove useful as a supplement to the O. S. U. test score in differentiating university students for various other purposes.

As determined for this study the socio-economic score is a crude measure. No attempt has been made to develop or standardize a new scale for socio-economic status. The data presented merely suggest that a careful study of the economic background of university students might prove of value for educational guidance and prediction.

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A RACIAL COMPARISON OF PERSONALITY TRAITS[1]

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PURPOSE

BERNREUTER has prepared a questionnaire consisting of 125 items for measuring four personality traits—neurotic tendency, self-sufficiency, introversion-extroversion and dominance-submission. Two additional scales—self-confidence and sociability—have been prepared by Flanagan. Thus, it is possible to study six personality traits with the same set of questions. This unusual feature has made the Bernreuter questionnaire the subject for much study and discussion.

Despite the criticisms of the instruments for measuring personality traits, it was felt that an interesting study might be made of *a comparison of white and Negro college girls on the six scales of the Bernreuter Personality Inventory.*

PROCEDURE

The subjects were 100 white and 100 Negro college girls with an average age of 19.0 years and 18.9 years respectively. They were drawn from the sophomore and junior classes.

The questionnaire was administered according to the instructions which Bernreuter has prepared. Each group was supervised entirely by a person of the race to which it belonged.

RESULTS

The raw scores were converted into percentile scores by using

[1] The writer is indebted to Dr. R. A. Schermerhorn and Miss H. E. McKnight for their assistance in making this study.

the set of norms for college women which was published in 1934. Table I presents the data pertaining to the comparison

TABLE I

Data Pertaining to the Comparison of the Mean Percentile Scores for the Two Racial Groups

PERSONALITY TRAITS	MEAN PERCENTILE SCORE		DIFFERENCE BETWEEN MEAN	STANDARD ERROR OF DIFFERENCE	CRITICAL RATIO
	White	Negro			
Neurotic Tendency	57.65	56.50	1.15	4.15	0.28
Self-Sufficiency	33.80	51.60	17.80	3.74	4.76
Introversion-Extroversion	52.20	53.10	0.90	4.07	0.22
Dominance-Submission	43.35	49.00	5.65	3.79	1.49
Self-Confidence	57.85	49.80	8.05	4.18	1.92
Sociability	47.20	57.90	10.70	3.95	2.71

of the mean percentile scores for the two racial groups. Table II presents the standard deviation and the number of extreme scores for each of the groups.

TABLE II

The Standard Deviations and Extreme Percentile Scores for the Two Racial Groups

PERSONALITY TRAITS	STANDARD DEVIATIONS		SCORES ABOVE 98 PERCENTILE		SCORES BELOW 2 PERCENTILE	
	White	Negro	White	Negro	White	Negro
Neurotic Tendency	29.09	29.66	3	2	0	3
Self-Sufficiency	25.36	27.09	2	1	3	1
Introversion-Extroversion	29.39	28.21	3	1	3	3
Dominance-Submission	26.21	27.49	2	3	4	4
Self-Confidence	27.67	31.28	1	1	2	2
Sociability	28.45	27.43	1	1	1	0

INTERPRETATION AND DISCUSSION

Neurotic tendency.—According to Bernreuter those who

score high on this scale tend to be emotionally unstable. The difference between the means of the two racial groups points to a greater instability in the white group, but the difference is too small to be considered statistically reliable. It is interesting to note that Sumner and Sumner obtained somewhat similar results in their study with the House Mental Hygiene Inventory.

Self-sufficiency.—The mean percentile score for the Negro girls is 51.60 and for the white girls 33.80. The difference between these scores is statistically reliable since it is 4.76 times its standard error. This means that the Negro girls tend more toward those activities which are characteristic of self-sufficiency.

Introversion-extroversion.—The difference between the mean scores for this trait is unreliable. The results for this trait are in agreement with Bernreuter's statement that this scale and the neurotic tendency scale have a high correlation.

Dominance-submission.—The mean score for the Negro group is 49.00 while that for the white group is 43.35. This difference is not significant, but if it were it would mean that the Negroes tended to be more dominant in "face-to-face situations." Cooper obtained somewhat the same results with the Allport Ascendance-Submission Test.

Self-confidence.—On this scale the white and Negro groups scored 57.85 and 49.80 respectively, but the difference of 8.05 is only 1.92 times its standard error, which means the difference is not reliable. If this difference were significant, the interpretation would be that the Negro group tends to be more self-confident than the white group.

Sociability.—The mean percentile scores for the white and Negro groups are 47.20 and 57.90 respectively. This difference of 10.70 is 2.71 times its standard error which is considered to be too small for reliability. Scores toward the high end of this scale indicate a lack of sociability.

Summary.—The only reliable difference found in this study is a tendency for the Negro girls to be more self-sufficient than

the white girls. The differences on the other scales are not reliable.

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REGRESSION FORMULA TO PREDICT EDUCATIONAL AGES FROM REVISED ALPHA SCORES

GILBERT S. MACVAUGH

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GREATER economy in any institutional psychometric program is an everpresent goal. Especially is this true in educational circles and personnel divisions of large industrial organizations. Frequently, the applied psychologist, in addition to data procured from the performance on the routine intelligence test, wishes to have the educational ages of the subjects being investigated.

Considerable time would be absorbed in obtaining both ratings. By procuring the appropriate regression formula and thereby predicting the ratings of a long test from the ratings of a brief and reliable test, financial economy and temporal efficiency would result.

An occasion for an increase in psychometric program efficiency arose in the psychological clinic at the U. S. Penitentiary, Leavenworth, Kansas, in which it was desired to convert the scores made on the intelligence test into educational ages.

Between April 1935 and December 1936, 2000 adult, male inmates had been given, under standard clinical conditions, the Revised Alpha Examination, form 5 (4), and the New Stanford Achievement Test, form W (2). The two tests correlated $+0.87 \pm .004$. Essential data from both tests were substituted in the general regression equation formula (1) which resulted in:

$$X \text{ (mos.)} = 0.63Y + 115.5 \qquad (1)$$

in which X is the educational age, in months, to be found. Y denotes any given Alpha score. The standard error of estimate is $\pm$ 13.5 months or $\pm$ 1.1 years.

the white girls. The differences on the other scales are not reliable.

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TABLE I

Showing All Possible Scores on the Revised Alpha Examination, Form 5, F. L. Wells, 1932, and the Corresponding Predicted New Stanford Achievement Test Educational Ages Derived by the Regression Formula:*

$X \text{ (mos.)} = 0.63Y + 115.5$

$\sigma \text{ (est)} = \pm 1.1$ yrs: P.E. (predicted E.A.) $= \pm 0.35$ mo.

ALPHA SCORE	CONV. E.A. YR. MO.	ALPHA SCORE	CONV. E.A. YR. MO.	ALPHA SCORE	CONV. E.A. YR. MO.	ALPHA SCORE	CONV. E.A. YR. MO.	ALPHA SCORE	CONV. E.A. YR. MO.
1	9 – 8	44	11 – 11	87	14 – 2	130	16 – 5	173	18 – 8
2	9 – 9	45	12	88	14 – 3	131	16 – 6	174	18 – 9
3	9 – 9	46	12 – 1	89	14 – 4	132	16 – 7	175	18 – 10
4	9 – 10	47	12 – 1	90	14 – 4	133	16 – 7	176	18 – 10
5	9 – 11	48	12 – 2	91	14 – 5	134	16 – 8	177	18 – 11
6	9 – 11	49	12 – 2	92	14 – 5	135	16 – 9	178	19
7	10	50	12 – 3	93	14 – 6	136	16 – 9	179	19
8	10 – 1	51	12 – 4	94	14 – 7	137	16 – 10	180	19 – 1
9	10 – 1	52	12 – 4	95	14 – 7	138	16 – 10	181	19 – 1
10	10 – 2	53	12 – 5	96	14 – 8	139	16 – 11	182	19 – 2
11	10 – 2	54	12 – 6	97	14 – 9	140	17	183	19 P
12	10 – 3	55	12 – 6	98	14 – 9	141	17	184	19 P
13	10 – 4	56	12 – 7	99	14 – 10	142	17 – 1	185	19 P
14	10 – 4	57	12 – 7	100	14 – 10	143	17 – 2	186	19 P
15	10 – 5	58	12 – 8	101	14 – 11	144	17 – 2	187	19 P
16	10 – 6	59	12 – 9	102	15	145	17 – 3	188	19 P
17	10 – 6	60	12 – 9	103	15	146	17 – 3	189	19 P
18	10 – 7	61	12 – 10	104	15 – 1	147	17 – 4	190	19 P
19	10 – 8	62	12 – 11	105	15 – 2	148	17 – 5	191	19 P
20	10 – 8	63	12 – 11	106	15 – 2	149	17 – 5	192	19 P
21	10 – 9	64	13	107	15 – 3	150	17 – 6	193	19 P
22	10 – 9	65	13 – 1	108	15 – 4	151	17 – 7	194	19 P
23	10 – 10	66	13 – 1	109	15 – 4	152	17 – 7	195	19 P

TABLE I—(*Continued*)

ALPHA SCORE	CONV. E.A. YR. MO.	ALPHA SCORE	CONV. E.A. YR. MO.	ALPHA SCORE	CONV. E.A. YR. MO.	ALPHA SCORE	CONV. E.A. YR. MO.	ALPHA SCORE	CONV. E.A. YR. MO.
24	10 – 11	67	13 – 2	110	15 – 5	153	17 – 8	196	19 P
25	10 – 11	68	13 – 2	111	15 – 5	154	17 – 8	197	19 P
26	11	69	13 – 3	112	15 – 6	155	17 – 9	198	19 P
27	11 – 1	70	13 – 4	113	15 – 7	156	17 – 10	199	19 P
28	11 – 1	71	13 – 4	114	15 – 7	157	17 – 10	200	19 P
29	11 – 2	72	13 – 5	115	15 – 8	158	17 – 11	201	19 P
30	11 – 2	73	13 – 5	116	15 – 9	159	18	202	19 P
31	11 – 3	74	13 – 6	117	15 – 9	160	18	203	19 P
32	11 – 4	75	13 – 7	118	15 – 10	161	18 – 1	204	19 P
33	11 – 4	76	13 – 7	119	15 – 10	162	18 – 2	205	19 P
34	11 – 5	77	13 – 8	120	15 – 11	163	18 – 2	206	19 P
35	11 – 6	78	13 – 9	121	16	164	18 – 3	207	19 P
36	11 – 6	79	13 – 9	122	16	165	18 – 3	208	19 P
37	11 – 7	80	13 – 10	123	16 – 1	166	18 – 4	209	19 P
38	11 – 8	81	13 – 10	124	16 – 2	167	18 – 5	210	19 P
39	11 – 8	82	13 – 11	125	16 – 2	168	18 – 5	211	19 P
40	11 – 9	83	14	126	16 – 3	169	18 – 6	212	19 P
41	11 – 9	84	14	127	16 – 3	170	18 – 7		
42	11 – 10	85	14 – 1	128	16 – 4	171	18 – 7		
43	11 – 11	86	14 – 2	129	16 – 5	172	18 – 8		

* E.A.'s corresponding to Alpha Score above 175 are of little value.

All possible scores on the Revised Alpha Examination were substituted for Y in (1) to obtain the E.A. which corresponds to each Alpha score. Table I shows these corresponding measures and by means of it, one may obtain in a few seconds, the most probable educational age which a man will receive when and if he take the educational test, which requires about three hours to administer. From the use of Table I, the applied psychologist will find that considerable economy results, because, if he be interested primarily in a group classification project, it obviates not only the purchasing of the relatively expensive educational tests but also the time required for administering and scoring the test. However, if his work demand a detailed analysis of each individual's educational status, the above table is only suggestive.

By using Table I, it was possible to compare each man's actual E.A., which was derived from the achievement test, with his predicted E.A., which was derived from the regression formula. The difference between each pair of E.A.'s was computed and a frequency distribution of the differences was made. When the predicted E.A. was less than the actual E.A., a minus quantity was assigned to the difference and *vice versa*.

Table II shows not only the pertinent measures of central tendency and dispersion found on the intelligence test and educational test performances, but also data resulting from the application of the conversion formula. It also shows that the average predicted E.A. was overestimated by less than one-half of one month (0.43 mo.). For all practical use such a small overprediction need not be of a serious concern.

Moreover, only 10 per cent of the 2000 predicted E.A.'s were underestimated by more than approximately one year (12.5 months); and only 15 per cent of the 2000 predicted E.A.'s were overestimated by more than approximately one and one-fourth years (14.6 months). Hence 75 per cent of the 2000 cases are concentrated within a range of differences not exceeding an underestimation of about one year and an overestimation of about one year and three months.

TABLE II

Showing the Measures of Central Tendency and Dispersion Derived from the Scores Made by 2000 Adult, Male Prisoners on the Revised Alpha Examination, Form 5, and the New Stanford Achievement Test, Form W

* $(E.A.)_A$ = actual E.A.; $(E.A.)_P$ = predicted E.A.

	MEAN	σ_M	σ	σ_σ	Q_1	MD.	Q	RANGE
Revised Alpha	71.8 ± 0.8		37.7 ± 0.01		42.4	68.0	96.4	4 – 201
*N.S.A. $(E.A.)_A$ yrs.	13.4 ± 0.1		2.3 ± 0.00		11.6	13.1	15.2	8.9 – 19.1
*N.S.A. $(E.A.)_P$ yrs.	13.4 ± 0.04		2.0 ± 0.00		11.9	13.2	14.8	
$(E.A.)_P - (E.A.)_A$ mo.	− 0.4 ± 0.03		13.2 ± 0.05		− 3.9	+ 1.5	+ 9.9	

Since the standard error of estimate indicates that the chances are 68 in 100 that the E.A.'s predicted from the Revised Alpha score will not vary from the actual E.A. obtained from the test by more than ± 1.1 years, it seems feasible to use the Revised Alpha Examination as an estimated index of the E.A.

The mean Alpha score of 71.8 did not vary significantly from that found in a previous survey (3), ($D/\sigma_D = 1.1$). The mean E.A. of 13.4 also did not vary significantly from the mean E.A. shown in the same previous survey ($D/\sigma_D = 0.04$). Thus, it may be assumed that the averages shown in Table II are quite representative of the inmate population committed here.

There is, however, nothing mandatory about the predicted educational recommendation. Inmates are not coerced to attend the institutional school nor is any one normally refused admittance. The regression formula is by no means used with a sense of finality; it is designed to facilitate the initial classification of prisoners educationally. Before actually assigning a man to school, many other factors, in addition to the findings of the regression equation and the intelligence test ratings, are considered.

Occasionally, because of hospitalization or other quarantine restrictions, the E.A. of an inmate is not procured. In such cases, if the Revised Alpha scores have been procured, they might be used by the Educational Department to estimate the subject's educational level for purposes of the initial classification committee report.

CONCLUSIONS

1. Derived from these 2000 inmates, the mean Revised Alpha score, 71.8, and the mean E.A., 13.4, are regarded as stable and representative of the means found in this institution from time to time.

2. The average predicted E.A. was overestimated by only one-half of one month. (0.43 mo.)

3. Seventy-five per cent of the 2000 predicted E.A.'s were concentrated within a range of differences not exceeding an underestimation of approximately one year and an overestimation of about one year and three months.

4. The $\sigma_{(est.)}$ is $\pm$ 1.1 years.

5. In the interview function alone, the use of Table I has contributed to the facility and efficiency of clinical procedures.

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WHAT STUDENTS WANT FROM THE ELEMENTARY COURSE IN PSYCHOLOGY

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THE choice of subject matter for Elementary Psychology has been taken up from several points of view by perhaps as many different men. No doubt each person writing a text book is faced with the problem of what should be presented, what should be left out and why. The determinants for the subject matter in a course are probably influenced by three things—the status quo, the demands of industry and social usage, and the wants of the students. Perhaps the latter is many times overlooked because of the pressure brought to bear by the other two. Nevertheless, each should have some weight in determining the content of the course.

It is realized that the problem of subject matter selection is not new, and it has not, nor probably ever will be completely solved. The two factors which prevent finality in the question are that the interests of individuals change with the turn of events, and that the subject matter of psychology is extending and growing on all fronts. For these reasons it appears to be necessary to make a periodic check up to obtain a sampling of the trend of thought of the times. There are causes today which influence the change of attitude toward the subject matter of psychology. Representative of these is the deluge of literature of a scientific, pseudo-scientific, and "popular" psychologically related material which is blanketing the nation. However, the solution is not to change the content of the course with each variation of the wind, nor is it to close the shutters and say, "we teach what we teach—no matter what." A compromise must be established.

Several writers have drawn attention to the fact that the content of courses in introductory psychology show little or no uniformity. (2, 5) The need has likewise been pointed out for a determination of content and also for a vitalization of the essential aspects in the course. In commenting on the first course, Schoen (8) makes the following observation: "The course is often treated as if it were but a preparation for a more advanced work in psychology, with the result that certain topics and technical details are introduced that are of interest only to the specialist and confusing to the amateur. While it is true that the elementary course gives opportunity for recruiting disciples for advanced study ;and no doubt succeeds in doing so, it is true that by far the larger number do not go beyond the introductory course. . . ." We may also add Hartmann's (5) statement in this connection: "Many psychologists would defend the status quo by insisting that the subject can only be appreciated by the better students; but as long as our institutions deliver "normal" youths to us for training, a social obligation exists to make the course personally rewarding to every member of the class." These conclusions are probably realized by instructor and student alike.

It is apparent also that the subject matter is generally treated on a theoretical rather than a practical basis; that is, very little of the course can be put into actual practice. Yet, if the "true" objective in beginning psychology is to be dealt with, it would likely be to present material in a manner which will enable the student to have a better background, outlook, and understanding in relation to human affairs, human problems and human nature. A student who has finished the first course should be better able to discuss current psychological problems with his fellow men, even though he can not solve all of his personal psychological riddles.

A study of the subject matter interest of students in psychology has been made by Laird 1933 (7), Arnold 1926 (1), Seward 1931 (9), *et al.*, but each has determined the interest

of the individuals after they have taken or while they are taking the course. This paper purports to measure the interest of individuals toward various topics in psychology before they have had the opportunity to be subjected to the course.

PROBLEM

An attempt was made to determine some of the material which students would like or dislike in a course in General Psychology. The procedure was to obtain a list of topics from "An Outline of General Psychology" (4) and supplement it with topics from several texts. To this list were also added Yates' (10) list of topics appearing in "popular" psychological magazines and other topics suggesting themselves in this field. The total list of 178 items was presented to 123 sophomore students (61 men, 62 women) on the first day they entered the course in General Psychology. As psychology is not compulsory at Beloit College, the selection of this course by these students shows a general interest in the subject, and would allow us to determine the student's specific interest from a general interest in psychology.

The following instructions were given: "Many topics might be taught in a course in General Psychology. Will you please check the items on which you would like to obtain information. Check 1, if you are not in favor of learning about the topic; 2, if you are mildly interested; and 3 if you are very much interested in the item."

The scores were computed for both men and women throughout. The following will give some indication of the results obtained. Most of the items that were liked very much by one sex were also liked very much by the other. In order to conserve space, a complete list of the items will not be given, but only those topics which portray the extremes of interest or disinterest.

The topics which over 60 per cent of the students checked 3 (very much interested in the item) are:

	PERCENTAGE OF: *		
	MEN	WOMEN	TOTAL
Emotion	69	78	73
Habit	70	77	73
Instinct	59	84	72
Delinquents and criminals	81	80	81
Emotional reaction	57	86	71
Moods	60	74	67
Attitudes	63	72	67
Temperament	59	72	66
Observation and measurement of personality	70	82	76
How physical structure affects the individual's personality	74	67	70
How glands affect the individual's personality	80	60	70
Personality traits	54	77	66
Causes of mental disorder	69	69	69
How to get what you want	76	66	71
Success	70	77	74
Happiness	79	80	80
How to develop your hidden powers	78	68	73
The sub-conscious mind	79	76	78
Concentration	69	68	68
How to be popular	60	73	67
How to develop personality	74	85	79
Will power	73	83	78
Character analysis	72	81	77
Self confidence or self reliance	77	76	77
How to get rid of complexes (or repressions)	63	81	72
How to cure bad habits	72	62	67
How to attract friends	66	72	69
Poise	61	80	70
Self-analysis	67	75	71
Domestic happiness	69	65	67
Character development	74	83	79
Emotional control	66	71	69
Understanding of my own personal reactions and ideas	76	74	75
How to adjust myself to environment	78	68	73
How to study	78	69	74
Propaganda	75	54	65

* Percentages figured by dividing number of students checking 3 by total number checking the item.

It is amusing to note the list of topics students checked as being of great interest and about which they want to learn. Many of the topics which are of interest to them are taken from those appearing in "popular" psychological literature. The majority of elementary courses only briefly mention most of

these topics—if at all. However the topics the students checked show a definite trend in the direction of desiring to know more about themselves and how to adjust to their environment.

The topics in which 40 per cent or more of the students indicated they are not interested are:

	PERCENTAGE OF: **		
	MEN	WOMEN	TOTAL
Organic sensitivity	33	53	43
The development of objective tests	50	35	42
Olfactory sensitivity	37	43	40
Classification of motivation	49	48	49
Gustatory sensitivity	53	48	51
Experimental investigations of motivation	48	33	41
Cutaneous sensitivity	52	45	48
The law of vibration	38	44	41
Kinesthetic sensitivity	60	46	52

** Percentages figured by dividing number of students checking 1 by total number checking the item.

The subjects that were checked 1 (not in favor of learning about the topic) are either not presented in most courses or are introduced in more familiar terms. It is interesting to note in this connection, that by changing the wording of the topics to more familiar terms the percentage of people not wanting to know about it is decreased. Note the following examples:

	PERCENTAGE NOT FAVORING
Auditory sensitivity	35
Psychological aspects of hearing	18
Olfactory sensitivity	40
Psychological aspects of smell	23
Gustatory sensitivity	51
Psychological aspects of taste	21
Cutaneous sensitivity	48
Psychological aspects of surface contact	33
Kinesthetic sensitivity	52
Psychological aspects of movement	34

It is self evident that a common wording rather than the scientific or unfamiliar tends to bring about a favorable impression toward the topic.

CONCLUSION

This study presents some of the topics which are liked and disliked by students entering the first course in psychology. From the evidence gathered here it might be concluded that psychology as it is being taught is side-stepping many of the topic wants of students. However, a problem still remains in determining how much emphasis should be placed on the subject matter wants of students. A more definite formulation of course material needs to be made. The status quo, the demands of industry, social usage, and the individual wants should be weighed more carefully and the proper emphasis allotted to each. It is a problem that no doubt requires further thought and further research.

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THE MOOSEHEART GRAPHIC RATING SCALE FOR HOUSEMOTHERS AND HOUSEFATHERS

MARTIN L. REYMERT AND HAROLD A. KOHN
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WITH the development of fairly efficient methods of educational and business ratings, the need for an objective rating of institutional housemothers and housefathers has been felt for some time. As the result of applying the customary techniques for the construction of rating scales, the following scale[1] for institutional housemothers and housefathers has been developed by the Mooseheart Laboratory:

THE MOOSEHEART GRAPHIC RATING SCALE FOR HOUSEMOTHERS

Mooseheart Laboratory for Child Research

Housemother's Name _____ Rated by _____
Hall _____ Date of Rating _____

Directions for Using the Scale

1. Please let these ratings represent *your* opinion and judgment of the housemother. Do not confer with any one else in making a rating.

2. In rating any particular trait disregard every other trait except the one in hand. Many ratings are valueless because the rater will allow his generally favorable or unfavorable impressions of the person to operate upon all the traits rated. This is known as the "halo effect" and *must be avoided.* Please do not rate a housemother high in every trait because she is exceptional in some respects. A housemother is very often high in some traits and low in others.

3. The lines below run from "very high" to "very low." You are to indicate your opinion by placing a check (√) somewhere on the line; it is

[1] The manual and scale with all necessary material are available from the Public School Publishing Company, Bloomington, Illinois.

not necessary to place the check immediately above any of the descriptive phrases or at any of the division points. You are to place your check at *any point* along the line representative of your best judgment.

4. Give a rating for every trait. If you are not sure of any specific rating check the "No opportunity to observe" column, but give your best judgment even in such a case.

5. Do not spend too much time rating any one housemother. Give your best possible judgment and go on to the next rating.

6. Your ratings will of course be held strictly confidential.

7. Notice the position of the specimen check below; this rating indicates that the supposed housemother is in the class which is "fairly efficient" but is more average (usually efficient) that "haphazard and slovenly" because the check is placed nearer the "usually efficient" group than the "haphazard and slovenly."

8. The feminine pronoun (she) has been used throughout this scale for convenience. It applies both to housemothers and housefathers.

Specimen Rating—Do not mark

1. Is she slovenly or efficient in her daily task?

haphazard slovenly worker	fairly efficient	usually efficient	efficiency is above the average	exceptionally efficient
		V		

FILL IN THE FOLLOWING RATINGS

	haphazard slovenly worker	fairly efficient	usually efficient	efficiency is above the average	exceptionally efficient	No opportunity to observe
1. Is she slovenly or efficient in her daily tasks?						

	usually starts and never finishes	has many times started and never finished a job	usually sticks to job until it is done	rarely leaves a job undone	never started without finishing
2. Is she perseverant or flighty on the job?					

3. Can she be reasoned with? Is she unreasonable?

can't be reasoned with as a rule	is fairly reasonable	reasonable as a rule	more reasonable than the average	very rarely is unreasonable

4. Does she make sound judgments or jump to conclusions?

jumps at conclusions judgment usually poor	somewhat impulsive fairly sound	moderately sound and careful judgment	unusually good; rarely jumps to conclusions	judgments always clear and thought out

5. Is she in general liked or disliked by students?

liked by a very few	fairly well liked	is liked by most of her students	is very well liked	liked by almost all

6. Does she need constant prodding or does she work independently?

needs constant direction	works fairly well alone	usually needs very little prodding	very rarely in need of prodding	exceptionally good in this respect

7. Is she usually self controlled or ill-natured?

ill natured flies off the handle easily	easily irritated	is usually self-controlled	rarely irritated	exceptionally well controlled

8. Is she "droopy" or does she appear full of energy?

lazy droopy listless	not a great deal of energy	shows as much energy as the average	energetic	unusually peppy and full of energy

9. Does she display originality in her work or follow the beaten path?

has never had a new idea	very little originality	some but not a great deal	considerable constructive ability	highly original

If there are any additional comments you may wish to make please record them here

INDIVIDUAL RATING AND SUMMARY CARD

The Mooseheart Graphic Rating Scale for Housemothers and Housefathers

Name .....

Employed (date) ..... Left (date) .....

Halls .....

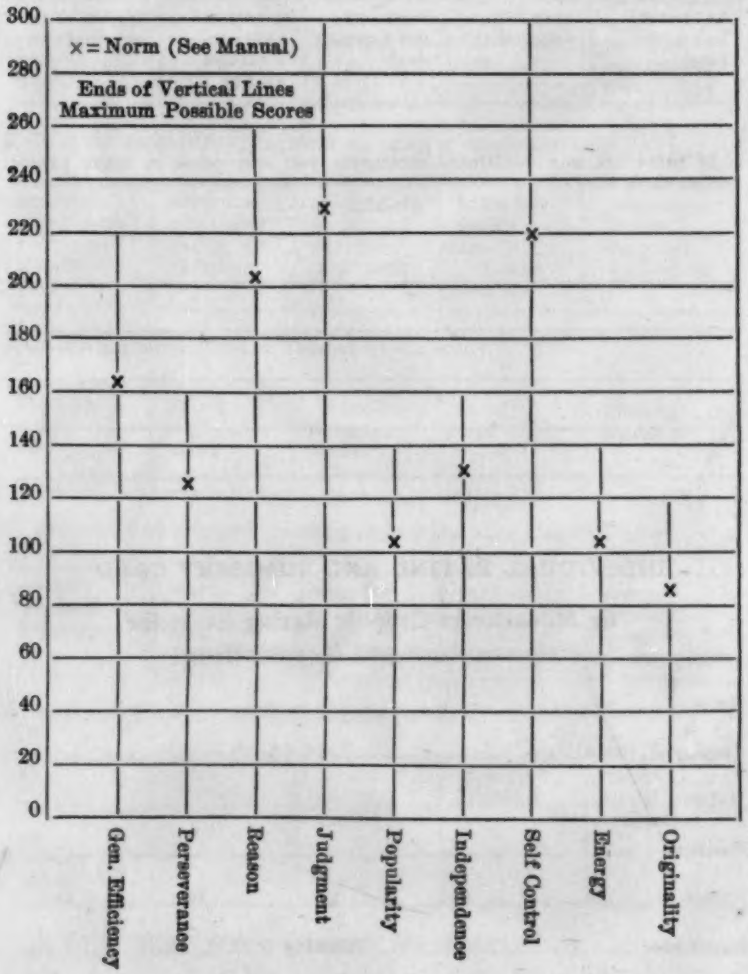
Position .....

Raters ..... 19 ..... 19 ..... 19 ..... 19 ..... 19 .....

Experience ..... Training .....

Education ..... Sex M F Married? .....

Number of Children ..... Wage Received .....


300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
× = Norm (See Manual)
Ends of Vertical Lines
Maximum Possible Scores
Gen. Efficiency
Perseverance
Reason
Judgment
Popularity
Independence
Self Control
Energy
Originality

TOTAL SUMMARY RECORD
WEIGHTED SCORES

Item	19.....	19.....	19.....	19.....	19.....
1 General Efficiency					
2 Perseverance					
3 Reason					
4 Judgment					
5 Popularity					
6 Independence					
7 Self Control					
8 Energy					
9 Originality					
Total					
Grade Rating					

Total Weighted Scores
1600–1780—First Grade Housemother
1100–1599—Second Grade Housemother
0–1099—Third Grade Housemother

The average reliability of the final form of the graphic rating scale is $.59 \pm .07$. The reliability of the items was determined in the conventional manner by correlating the ratings of two comparable judges acquainted with the individuals rated over a period of many years. Since the scale is intended for use by practical institutional administrators, no correlations of any kind were applied to the raw reliability coefficients, as these corrections would have to be made anew whenever the scale is to be used, and the demands upon time and energy would be too great.

When the reliability of the scale was determined it was decided that individual items should receive weights commensurate with their relative importance for actually differentiating desirable degrees of "goodness" in home employees. A large number of psychologists and five of the administrative officers of the institution were asked to distribute 90 points

among the nine items of the scale in order of their importance for differentiating the types of employees desired. A conversion table was then constructed assigning a weighted score for the average of the two raw scores given by the raters.

A total of the nine weighted items is recorded on the back of the individual summary card and the general grade weighting assigned. It was thought that a graphic portrayal of the results in addition to the tabular material would be of decided aid to administrative officers of the institution. It will be noted that the graph has vertical lines of widely varying height representing the maximum score possible on each item. The differing heights are due to the varying weights assigned each item by the judges. Thus the item with the highest line is the most important and that with the shorest line the least important. These weights are all taken into account in the computation of the total weighted score.

The validity of our ratings is probably greatly influenced by the acquaintance factor. Various investigators have long pointed out that a systematic error arises from long acquaintance of the rater with the ratee. In a highly practical institutional situation it is almost an impossibility to set aside sufficient time for a set of new raters to become sufficiently observant of some fifty or more individuals in order that they may rate them. The validation of this rating scale rests mainly upon the interview method.

AGE AND PERFORMANCE ON A REPETITIVE MANUAL TASK*

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University of Pennsylvania

THE problem of the relationship between age and human ability in adults, accentuated by an unfavorable attitude toward men of over forty years of age in certain quarters of industry, has received considerable attention in recent years. Investigations of the loss of motor ability with advancing age, based to date exclusively on usual psychological test performances of short duration, have indicated almost invariably a decline in ability commencing somewhere between 30 and 40 years and becoming more marked with the increase of age beyond that range.

Ehinger, for instance, found that performance of factory women on short tests of dotting, tapping, bead stringing, paper cutting and disc placing, improved from 25 to 30 years of age but declined thereafter until results at the 50 year level ranged between 6.7 per cent and 19.4 per cent inferior to those of the 30 year group.[1] (See Fig. 1.) Chase and Darley obtained results similar to those of Ehinger in the administration of the Minnesota Manual Dexterity Test and the O'Connor Finger and Tweezer Dexterity Tests to clerical workers of various ages.[2] (See Fig. 2.)

Data obtained from a wide range of ages by W. R. Miles with the use of numerous tests, including some of motor ability,

* The writer wishes to express his gratitude to Dr. Morris S. Viteles for his invaluable direction and criticism in the performance of this study.

[1] G. Ehinger, "Declin des Aptitudes avec L'Age," Arch. de Psych., 1931–32, 23, 67–73.

[2] W. P. Chase and J. G. Darley, "Age Changes and Occupational Test Scores Among Clerical Workers," Univ. of Minn. Emp. Stab. Res. Inst. Bull., Vol. 3, No. 4, 1934, 15–23. D. G. Paterson, Ed.

indicate that, "A rapid rise of ability or capacity during childhood and youth comes to its maximum usually in the period between 18 and 30 years of age. After this there is at first a slow decline, then beyond age 65 or 70 a rather rapid fall."[3] In presenting average results for age groups Miles emphasizes the considerable extent of overlapping found in scores from one age group to another, and maintains that individual demonstrated ability must be considered in the evaluation of older men.

PURPOSE OF THE PRESENT STUDY

The studies cited reveal rather close agreement in the establishment of age differences in motor ability as measured by short test trials. The aim of this study is to investigate the extent of differences accompanying age in a performance more closely analgous to an industrial work situation from the standpoints of length of the work spell, motivation, and general working conditions. The use of short test trials in the investigation of age differences seems open to certain objections in spite of Miles' contention that ". . . a given test-experiment when well defined and technically adequate need not be temporally long in order to give reliable results and definitely to indicate whether or to what extent the ability involved shows changes with age. The simplest and most fundamental functions if clearly correlated with age need no long drawn-out tests to establish this fact."[4]

There is reason to believe that such brief samplings of behavior give little evidence as to the ability of the subject to maintain his level of performance over a period of time comparable to the industrial work spell. This would seem to be a significant point since a common belief in lower endurance of older men is one of the major barriers to their obtaining employment. Furthermore, short trials give little indication of

[3] W. R. Miles, "Abilities of Older Men," Pers. J., 1932–33, 11, 352–57.

[4] W. R. Miles, "Age and Human Ability," Psych. Rev., 1933, 40, 99–121.

differences which may exist among age groups in speed of "warming up" to the work, or in variation of work pace from time to time during the spell.

The present study in addition to attempting to meet these objections affords a comparison of age differences in output as determined by a short test period and by a long work period at the same performanace, thus providing a check upon the adequacy of the short test technique in the investigation of this problem.

METHOD OF PROCEDURE

Subjects. One hundred fifty-five men selected from among those quartered at a training center for transient unemployed men served as subjects. Since these men had been judged to be physically fit and capable of profiting from industrial training before admission to this center it is felt that the group represents a selection of better unemployed transients. Subjects were picked so as to form age groups centering about the ages of 20, 30, 40, and 50 years, with intervals between, as shown in Table 1. The age groups were roughly matched on the basis of combined Pressey Senior Classification and Verification Test scores, as shown in Table 2.

TABLE 1
Age Grouping of the Subjects

		AGE GROUP LIMITS	ACTUAL AVERAGE AGE	N
Group 20	20 yr. group	18 yrs.–22 yrs. 11 mos.	20 yrs. 5 mos.	41
Group 30	30 yr. group	28 yrs.–32 yrs. 11 mos.	30 yrs. 5 mos.	39
Group 40	40 yr. group	38 yrs.–42 yrs. 11 mos.	40 yrs. 5 mos.	41
Group 50	50 yr. group	48 yrs.–52 yrs. 11 mos.	50 yrs. 4 mos.	34
				155

Nature of the Test Performance. The motor performance in this experiment was that of assembling and disassembling the same two nuts and bolts over a period of time. The bolts were

TABLE 2

*Pressy Senior Classification and Verification Test Combined Scores**

	AVERAGE	MEDIAN	MINN.	MAX.	σ DIST.	σ AVE.	V
Group 20.....	81.4	70.0	33	169	35.5	5.55	43.6
Group 30.....	71.5	69.9	23	165	32.2	5.16	45.0
Group 40.....	72.4	70.7	14	174	36.6	5.72	50.6
Group 50.....	83.8	81.0	17	159	39.6	6.79	47.2

* It might be well to note here that there resulted in this study a product moment correlation coefficient of $+.118 \pm .054$ between Pressey Test Scores Combined and scores on a fifteen minute manual assembly period, and one of $+.037 \pm .054$ between Pressey Test Scores Combined and scores on a four hour manual assembly period ($N = 155$).

¾ inch square head, with one inch under the head, and ½ inch in diameter. By the use of a modified Brown Spool Packer it was possible to have the work continuously fed back to the subject. One cycle or *unit* of work consisted of the screwing together and unscrewing of two nuts and bolts, and consumed on the average 23 seconds of time.

General Procedure. The subjects worked for two periods at this assembly task. The first, or A, period was fifteen minutes in duration. The second, or B, period consisted of four hours of uninterrupted work, taking place between one and five p. m. o'clock of the same day as, or the day following, the shorter trial. A general conception of the conditions of work can be obtained from an inspection of Plate 1. An ordinary clock was plainly visible to the subjects at all times. Automatic counters recording each unit of work were read by the experimenter every five minutes.

From three to four subjects were tested at a time, the identity of the A group always being maintained for the B performance, with never fewer than two age groups represented. An equal proportion of each of the various groups worked at each bench.

A financial incentive system in the form of a straight piece rate plan was applied to the Pressey Test and the A and B performances, enabling a subject to earn between 35 and 90

cents total. The consistent manner in which the subjects applied themselves to the work, in addition to the futile attempts of certain of them to give themselves an advantage by appearing with oily hands calculated to effect lubrication of the nuts and bolts, convinced the experimenter that the men were well motivated. The writer feels that the conditions under which this work was performed were closely analogous to those prevailing in many production operations in industry. The task is similar to many routine factory operations, such as the inspection of threaded metal parts in which the same gauge screw is turned in and out of hundreds of pieces a day.

RESULTS

Short Assembly Period. The average nut and bolt assembly production in terms of *units* for each of the age groups, along with other significant measures of the A assembly period, is shown in Table 3. The average production of each group expressed as a percentage of the average production of Group 30, the best group, is given, and the extent of overlapping is indicated in the percentages of the various groups which reached or exceeded the median score of Group 30. The critical ratios indicating the significance of the differences between Group 30 and each of the remaining groups on the basis of these percentages of overlapping are given in the column headed $\frac{D^*}{\sigma_p}$.

* The value $\frac{D}{\sigma_p}$ is defined as follows: D represents the difference between the observed per cent of one distribution which reaches or exceeds the median of a second distribution and fifty per cent. σ_p gives the standard error of the proportion of one distribution reaching or exceeding the median of the second, as shown by T. L. Kelley in "Statistical Method," page 318, New York, 1923. Kelley gives for σ_p the expression:

$$\sigma_p = \sqrt{\frac{f^2}{n^2}\left[\frac{Ni^2_p PQ}{f^2_p}\right] + \frac{pq}{n}}$$

This formula makes no assumptions in respect to the form of the distribution involved, nor in respect to equality in the number of cases in the two distributions. The writer is indebted to Dr. Malcolm G. Preston, of the Department of Psychology, University of Pennsylvania, for his guidance in the application of this formula.

TABLE 3
Short Assembly Period Results

	AVE. PROD. A IN UNITS	σ DIST.	SK.	σ AVE.	% OF PROD. OF GROUP 30	% REACHING OR EXCEEDING MEDIAN OF GROUP 30	$\frac{D}{\sigma_p}$
Group 20	34.39	4.56	.145	.713	97.0	43.9 (18)	.53
Group 30	35.44	5.60	.466	.896	100.0	———	———
Group 40	33.90	4.54	.198	.709	95.7	41.5 (17)	.69
Group 50	32.56	4.98	.337	.854	91.9	20.6 (7)	2.75

None of the group differences in Average Production A are of unquestionable statistical significance, the highest value of $\frac{D}{\sigma_{diff}} = 2.32$ occurring in the comparison of Group 30 with Group 50. (See Table 5). The clearest indication of age differences is in the low proportion (20 per cent) of Group 50 men reaching or exceeding the median of Group 30, though it is to be noted that the ratio of $\frac{D}{\sigma_p} = 2.75$ does not positively establish the inferiority of Group 50 to Group 30 insofar as this statistical criterion is concerned.

Plotting of the average scores of the age groups results in a curve of performance which improves slightly from 20 to 30 years of age, dropping at 40 years and falling to a considerably lower level at 50 years. (See Fig. 3.) This age-performance curve conforms rather closely to those obtained by other investigators with the use of short tests (Figs. 1 and 2).

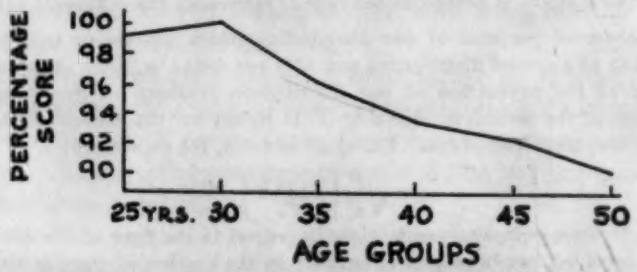

FIGURE 1. AGE AND DISC PLACING PERFORMANCE

Scores for the various age groups of Ehinger's workers. The average score for each age is expressed as a percentage of that of the best group. Percentages calculated from table in (1). Female subjects.

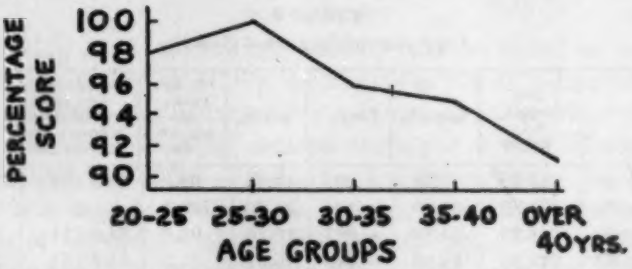

FIGURE 2. AGE AND O'CONNOR TWEEZER DEXTERITY TEST PERFORMANCE
Scores for various groups of clerical workers. The average score for each age group is expressed as a percentage of that made by the best group. Percentages taken from Chase and Darley (2). Male and female subjects.

Long Assembly Period. Comparison of Short and Long Test Periods. In Table 4 appear the significant measures for the B assembly period which were similarly presented for the A period. In general the long nut and bolt assembly period gives the same type of age curve as did the short trial. (See Fig. 3). It is to be noticed, however, that the differences

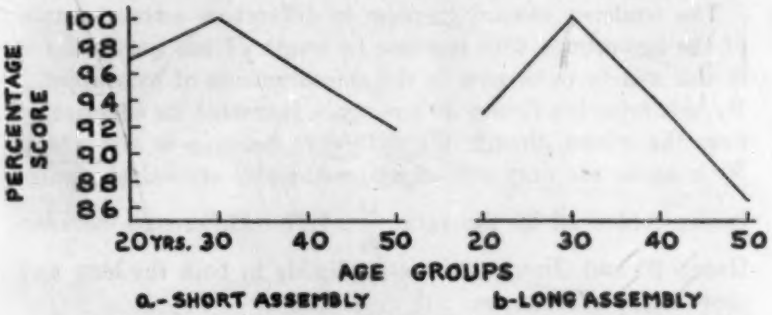

FIGURE 3. AGE AND REPETITIVE ASSEMBLY WORK
Nut and bolt age-production curves for: a—Short assembly period, and, b—Long assembly period. The average production for each age group is expressed as percentage of the production of the best group in the period in question. Male subjects.

among the age groups have increased, on the whole, in the long period as opposed to the short period. Group 30 has in-

TABLE 4

Long Assembly Period Results

	AVE. PROD. B IN UNITS	σ DIST.	SK.	σ AVE.	% OF PROD. OF GROUP 30	% REACHING OR EXCEEDING MEDIAN OF GROUP 30	$\frac{D}{\sigma_p}$
Group 20	623.32	77.28	−.298	12.08	92.9	34.1 (14)	1.40
Group 30	671.22	83.30	.314	13.32	100.0		
Group 40	628.29	84.80	−.027	13.25	93.6	34.1 (14)	1.29
Group 50	580.29	89.25	−.046	15.31	86.5	14.7 (5)	*3.97*

creased its margin of superiority over the remaining groups. The average production of Group 50 is here seen to be 13.5 per cent inferior to that of Group 30, instead of 8.1 per cent as in the short period, and the ratio of $\frac{D}{\sigma_{diff}} = 4.48$ establishes the statistical significance of this difference. An examination of Table 5 reveals that this is the only significant critical ratio so far as group averages are concerned, though five of six critical ratios have increased from the short to the long performance.

The tendency toward increase in differences among certain of the age groups with increase in length of test performance is also clearly to be seen in the measurements of overlapping. By this criterion Group 30 has again increased its superiority over the others, though the difference between it and group 50 is again the only one of unquestionable statistical significance, evidenced by the ratio $\frac{D}{\sigma_p} = 3.97$. Differences between Group 20 and Group 40 were negligible in both the long and short test performances.

TABLE 5

Critical Ratios Applying to the Differences in Average Production Among the Age Groups

SHORT ASSEMBLY PERIOD				LONG ASSEMBLY PERIOD			
Groups	20	30	40	Groups	20	30	40
30	.91			30	2.66		
40	.49	1.35		40	.28	2.28	
50	1.65	2.32	1.21	50	2.21	*4.48*	2.37

CONCLUSIONS

In view of these findings question may be raised as to the adequacy of the short test technique in the investigation of age differences in motor ability. It appears that while short test trials may correctly indicate the trend of age differences, such short samplings of behavior are not sufficient to reveal quantitative differences which are significant from the standpoint of practical applications of psychology.

An average inferiority of 14 per cent in output at a motor performance such as was demonstrated in the long work period of this study on the part of 50 year old men as compared with 30 year old men, is a rather serious matter in terms of modern industrial production standards. However it is significant to note that about 15 per cent of 50 year old men were equal or superior to the median 30 year old man in productive ability in a task requiring fast dexterous movement of fingers, hands and arms over a considerable period of time. This again suggests, as Miles, Chase and Darley and others have contended, that individual consideration is necessary in the placement of

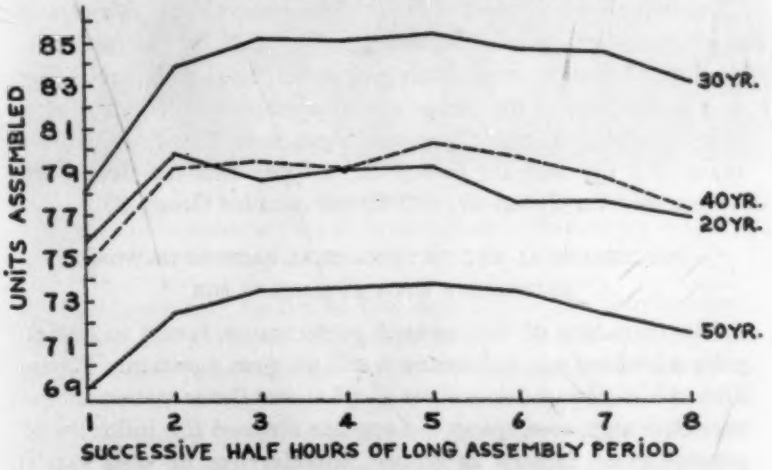

FIGURE 4. AGE AND WORK CURVES

Average production on nut and bolt assembly at half hour intervals of the four work period for the various age groups.

older men in industry. The above conclusions represent the major findings of this study. However it would seem pertinent to present briefly a few incidental findings obtained in accordance with the objectives earlier noted.

AGE AND WORK CURVES

The average work curves of the various groups in the B work period plotted at 30 minute intervals are shown in Figure 4. The most striking feature of these curves is their similarity in form. The 50 year curve reveals, by inspection, no tendency toward relative slowness in "warming-up" to the work at the outset of the period, nor does it show an earlier or greater decrement in output as the end of the work period is approached.

AGE AND VARIABILITY IN PRODUCTION

An indication of variability in production for each of the age groups was obtained in the following manner. The differences between the successive 15 minute periods of output were totaled for each subject. These differences for all subjects in a given age group were summed and divided by the total production of the group, resulting in an expression of variability as a percentage of the group's total production. Slight differences in group variability percentages were found, the values being: 5.5 per cent for Group 20; 4.3 per cent for Group 30; 4.4 per cent for Group 40; and 4.2 per cent for Group 50.

PSYCHOLOGICAL AND PHYSIOLOGICAL FACTORS IN WORK DECREMENT WITH ADVANCING AGE

The causation of the lowered performance found to accompany advanced age in humans is still an open question. Thorndike, while giving due weight to whatever degeneration of the organism may accompany old age has stressed the influence of psychological factors as disuse, interference of well established habits, and lowered motivation in the learning of new tasks by the aged. While the present investigation was not

one of learning it may be well to note that its results do not seem readily explainable in terms of the first two of these factors, in view of the fact that greater inferiority in output was displayed by the older men in the subsequent long period of work than in the preceding trial period, but the third factor may have been operative. This study offers no evidence on the contention that loss in the functions involved in motor ability tests with advancing age is due primarily to physiological deterioration in the human organism.

PLATE 1. THE TESTING LABORATORY
Subjects are shown at work at left and center. Examiner's table with counters at right.

Whatever may be the factors underlying the phenomena in question the handicap of age can be lightened if industry will select older men on the basis of demonstrated individual ability. Moreover, while man as a rule apparently becomes superannuated on speed jobs involving motor ability at about fifty years of age, the facts of adult learning, as determined by Thorndike, indicate that he is still capable of learning some work of another nature within reasonable time.

SUMMARY OF FINDINGS

1. On a high speed manual ability task of long duration, which is analogous to many industrial assembly operations, men of fifty years of age were proven on the average to be significantly inferior in output to those of thirty years of age, by the criterion of the significance of the difference between their average scores and that of the significance of the proportion of one group reaching or exceeding the median of the other.

2. The indications by the same criteria are that twenty and forty year old men are somewhat inferior to thirty year old men at this task, though these differences cannot be regarded as definitely established.

3. Fifty year old men average 14 per cent lower in output than thirty year old men in this manual performance.

4. While the short (fifteen minute) assembly test served to indicate the trend of age differences in performance it proved inadequate to show the extent of such differences as they were revealed by the long (four hour) assembly period.

5. Work curves for the four hour assembly period for groups aged twenty, thirty, forty and fifty years were found to be very similar in shape.

6. Differences among the age groups in variability in work pace were found to be very slight.

PERMANENCY OF MENTAL ALERTNESS MEASURES

CHARLES M. DAVIDSON

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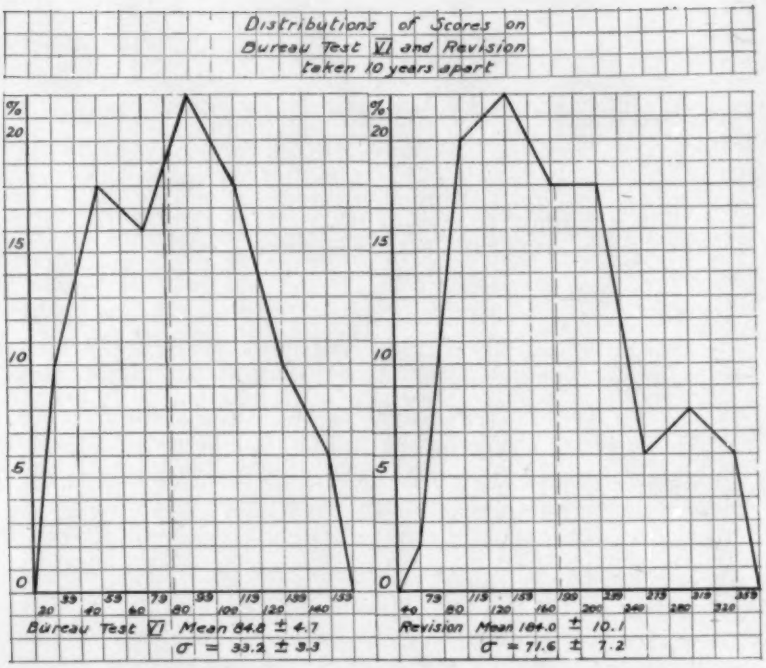
IN 1936 an experimental form of a contemplated revision of Bureau Test VI, which is itself a revision of Army Alpha, was given to a group of employees of approximately equal length of service. Among these were 50 persons who were hired during the years 1925–26 after Bureau Test VI was first administered in the employment office but before it was used for selection purposes. Since these 50 had not been selected on the basis of mental alertness score but only on the basis of the interview and the processes of elimination that had been in operation for the ten years of their employment, the material permitted comparison of the results from two tests with an intervening span of ten years. As this is a longer period than usual in test work, we feel that the results are worth reporting.

The accompanying graph shows percentage frequency distributions of the scores on Bureau Test VI taken at the time of employment and on the experimental test revision of Bureau Test VI, taken 10 to 11 years later. As can be seen from the score range, the tests are not at all comparable from the point of view of amount of material, nor are they comparable from the point of view of type of test. Bureau Test VI is a spiral omnibus and the revision consisted of separate sub-tests. Also, in building up the revision, an effort was made to have the new material somewhat more difficult than similar material in Bureau Test VI, though care was taken to include sufficient simple material at the beginning of each sub-test so that there would not be a concentration at the zero point. Thus, we have two tests somewhat dissimilar in difficulty and range of material, scrambled sentences and arithmetic problems having been



dropped in the revision, and definitely dissimilar in administration; Bureau Test VI having an over-all time limit of fifteen minutes, the revision having separate time limits of five, ten, twelve, and five minutes. However, the correlation between the total scores on the two tests on this group of 50 was .89 ± .03. This means that those individuals who received a low score in Bureau Test VI ten years ago, received a low score in the revision, and those who received a high score ten years ago, received a high score last year.

If we correlate the material in the revision against comparable material in Bureau Test VI, we obtain the following results:

Opposites	.81 ± .05
Verbal Relations	.65 ± .08
Number Series	.71 ± .07
Information	.81 ± .05

The lower correlation in the case of verbal relations and number series in comparison with the other two is probably due to the difference in the degree of difficulty of the material in the two tests. The verbal relations and number series of the experimental were appreciably more difficult than those in Bureau Test VI, while the opposites and information were approximately of the same degree of difficulty.

We had a criterion of validity for both tests in terms of the job levels to which the individuals had attained at the end of ten years of service with the company. Because of the small number, we have restricted our job levels to three, representing: B, simple clerical work; C, complicated clerical work; and E, decision-making jobs. The correlation of the two tests with this criterion were:

Bureau Test VI, taken at time of employment	$.77 \pm .06$
Experimental, taken after 10 years of service	$.83 \pm .04$

The means for the different levels of jobs are as follows:

TABLE I

Table of Means and Standard Deviations

JOB LEVEL	N	BUREAU TEST VI		REVISION	
		M	σ	M	σ
E	13	120.8 ± 6.2	22.4 ± 4.4	275.2 ± 13.8	49.6 ± 9.7
C	17	86.4 ± 5.7	23.4 ± 4.0	175.2 ± 11.7	48.0 ± 8.3
B	20	60.0 ± 5.0	22.6 ± 3.6	132.0 ± 7.3	32.8 ± 5.2

As can be seen from this table, much greater separation exists between the E and C jobs than exists between the B and C jobs on the revision, while the separation on Bureau Test VI is approximately the same. It is not possible to determine whether this difference in separation of job levels is due to the construction of the revision test or whether it is due to the greater variety of training and practice that exists in the E level and that has been operating for some part of their 10 years of service.

In general, however, it would seem that the quality measured by these tests has remained fairly constant throughout the 10 years and that that quality is related in a fairly marked degree to promotability or job level attained after a period of 10 years.

NEWS AND NOTES

REPORT OF A SUB-COMMITTEE OF THE NEWLY FORMED AMERICAN ASSOCIATION OF APPLIED PSYCHOLOGISTS

A committee of the newly formed American Association of Applied Psychologists, consisting of Dr. E. DeAlton Partridge, Dr. P. M. Symonds and Dr. C. L. Shartle, is now working on the problem of employment for trained psychologists. In this connection a bibliography has been prepared by the National Occupational Conference dealing with psychology as an occupation. In order that it will receive wider distribution, this bibliography is reproduced below, together with a statement of the activities of this sub-committee:

PSYCHOLOGY AS AN OCCUPATION

BIBLIOGRAPHY

BY

NATIONAL OCCUPATIONAL CONFERENCE

NEW YORK

Achilles, P. S., ed. *Psychology at Work.* 1932. New York, McGraw-Hill. 260 pp. $2.50.

Reviews of various fields of applied psychology by prominent workers in each. Not strictly occupational material, but affords a rich picture of the nature of the work.

Adams, E. K. *Women Professional Workers.* 1921. New York, Macmillan. 467 pp. $2.50.

Various applications of psychology. Positions in psychology; salaries; training necessary.

Anderson, R. G. "Concerning School Psychologists," March–May, 1933. *The Psychological Clinic* 1: 41–47.

Needed qualifications and experience.

Arlitt, A. H. "The Psychologist." *In* Filene, Catherine. *Careers for Women.* 1934. New York, Houghton, Mifflin. 620 pp. $3.00 Pp. 290–295.

Nature of the work; training necessary; opportunities for advancement; earnings; supply and demand for workers.

Baxter, M. F. "Opportunities for College Graduates in Psychology." June–September, 1920. *Journal of Applied Psychology* 4: 207–218.

Training and experience necessary for work of the "psychological examiner." Institutions offering training; nature of the work; probable future; earnings. Addressed to women.

Bingham, H. C. "Mechanical Aids for the Classification of American Investigators, with Illustrations in the Field of Psychology." November, 1922. *Bulletin of the National Research Council*, 1922, No. 4. 50 pp.

Detailed description of the Findex system installed in the Council offices. Illustrations of the possibilities of the system include tabulations of activities of psychologists, distribution of specialties, relation of age to specialty, length of experience by field of work, etc., etc.

Bingham, W. V. "The Future of Industrial Psychology." January–February, 1937. *Journal of Consulting Psychology* 1: 9–11.

Some of the probable future applications of techniques in industrial psychology.

Blanchard, P. "Analysis and Treatment of Behavior Problems in Children." *In* Filene, Catherine. *Careers for Women*. 1934. New York, Houghton Mifflin. 620 pp. $3.00. Pp. 258–261.

Occupations in the field; training necessary; opportunities for advancement; financial returns; qualifications desirable for success; advantages and disadvantages; supply and demand.

Boring, E. G. "Statistics of the American Psychological Association in 1920." August, 1920. *Psychological Bulletin* 17: 271–278.

Subjects taught, fields of research, academic rank, academic degrees of 393 members of the American Psychological Association.

Boyakin, E. E. "A Survey of the Field of Clinical Psychology in New York State." September, 1926. *Journal of Educational Psychology* 17: 402–417.

Number of clinics, location, training of staffs. Number of trained psychologists, their distribution, etc. As of 1926.

Bronner, A. F. "The Clinical Psychologist." *In* Filene, Catherine. *Careers for Women*. 1934. New York, Houghton Mifflin. 620 pp. $3.00. Pp. 271–274.

Nature of the work; training and qualifications necessary; earnings; advantages and disadvantages; opportunities for employment.

Cattell, J. McK. "Practical Psychology." January 14, 1921. *Science* 53: 30–35.

General discussion of the work of practicing psychologists. Suggestions regarding some of the things psychologists might do.

Cattell, J. McK. "Psychology in America." October 11, 1929. *Science* 70: 335–347.

History of psychology in America. Distribution of psychologists. Organizations of psychologists.

Cattell, J. McK. "Retrospect: Psychology as a Profession." January–February, 1937. *Journal of Consulting Psychology* 1: 1–3.

Importance of psychology. Growth of the profession.

Cattell, J. McK. "Statistics of American Psychologists." July–October, 1903. *American Journal of Psychology* 14: 310–328.

Various distributions. Now has only historical interest.

Fernberger, S. W. "Further Statistics of the American Psychological Association." November, 1921. *Psychological Bulletin* 18: 569–572.

Institutions from which psychologists secured their Ph.D. degrees; institutions where they received their undergraduate training. Based on 377 members of the American Psychological Association in 1921.

Fernberger, S. W. "Statistical Analysis of the Members and Associates of the American Psychological Association, Inc., in 1928: A Cross Section of American Professional Psychology." November, 1928. *Psychological Review* 35: 447–465.

Geographical distribution, academic preparation, positions, subjects taught, fields of research of some 600 members.

Fryer, D. "Psychology in its Vocational Applications." January, 1927. *Mental Hygiene* 11: 124–139.

Critical reviews of a number of books on various aspects of applied psychology, chiefly industrial psychology.

Gates, A. I. "The Future of Educational Psychology." January–February, 1937. *Journal of Consulting Psychology* 1: 6–8.

Forecast: applications of psychology to education will increase, and tend toward study of individuals rather than abstract principles or isolated characteristics.

Hatcher, O. L. *Occupations for Women.* 1927. Richmond, Virginia, Southern Woman's Educational Alliance, 401 Grace American Building. 527 pp. $3.50. Pp. 447–452.

Fields of work. A note on training requirements.

Hildreth, G. "Psychology as a Career." March–April, 1937. *Journal of Consulting Psychology* 1: 25–28.

Nature of work; educational preparation necessary; number of practicing psychologists; opportunities for employment; disadvantages.

Jones, V. A. "Fields of Instruction and Research in Psychology as Represented by Members of the American Psychological Association." January, 1934. *Journal of General Psychology* 10: 211–214.

Teaching and research subjects of 525 members.

Kingsbury, F. A. *Psychology: Vocations for Those Interested In It.* Not dated. Chicago, University of Chicago Press. 4 pp. 7 cents.

Principal occupations of psychologists; functions of each. Kinds of organizations employing psychologists. Opportunities for employment. "Related training subjects." Short bibliography.

Kitson, H. D. "A Further Study of the Turnover of Psychologists." October, 1933. *Journal of Applied Psychology* 17: 542–549.

Promotions and resignations among members and associates of the American Psychological Association. Growth in numbers of psychologists. Number of women in the field. Bibliography.

Kitson, H. D. "A Preliminary Personnel Study of Psychologists." July, 1926. *Psychological Review* 33: 315–323.

Rates of turnover, 1920–1925; probable future opportunities; chances for women. Based on membership statistics of the American Psychological Association.

Kitson, H. D. "Vocational Histories of Psychologists." December, 1927. *Personnel Journal* 6: 276–280.

Vocational histories of college teachers of psychology, stressing progress in training and academic status.

Krugman, M. "The Psychologist in the Bureau of Child Guidance, Board of Education, New York City." April, 1936. *The Consulting Psychologist* 2: 6.

Rather detailed description of the work of the psychologist in the New York Bureau. Duties and qualifications as fixed by law.

Leuck, M. S. *Fields of Work for Women.* 1926. New York, Appleton. 347 pp. $2.50. Pp. 234–237.

Importance and nature of psychology as a science. Some important applications. Fields of work. Brief, sketchy presentation.

Link, H. C. "The Future of Consulting Psychology." January–February, 1937. *Journal of Consulting Psychology* 1: 12–13.

Training necessary. Some probable trends.

Menge, E. J. vonK. *Jobs for the College Graduate in Science.* 1932. New York, Bruce. 175 pp. $2.00. Pp. 160–161.

Number of psychologists; fields of work; qualifications; training. Brief, sketchy statement.

Murchison, C. A. *History of Psychology in Autobiography.* 1930–1932. Worcester, Massachusetts, Clark University Press. 2 volumes, 516 & 407 pp. $10.00.

Autobiographies of a number of eminent psychologists.

National Research Council. Division of Educational Relations. *Psychology as a Career.* 1927. Washington, D. C., National Research Council. 15 pp. Out of print.

Fields of pure psychology and major fields of application. Fitness for a career in psychology. Training necessary. Special notes on educational, clinical, and industrial psychology by authorities.

Paynter, R. H. "The Clinical Psychologist at Work." December, 1927. *Personnel Journal* 6: 283–294.

Development of mental hygiene; organization of the mental hygiene clinic; functions of the staff. "Ten main steps" in daily duties of the clinical psychologist. Examples of cases requiring remedial treatment.

Peirce, A. *Vocations for Women.* 1933. New York, Macmillan. 329 pp. $2.00. Pp. 95–97.

Definition of psychology. Fields of work. Training.

Platt, R. *Book of Opportunities.* 1933. New York, Putnam. 479 pp. $3.00. P. 355.

Brief but meaty paragraph on the clinical psychologist. Duties, training, earnings, future opportunities.

Proctor, W. M. *Vocations.* 1929. New York, Houghton Mifflin. 382 pp. $1.48. Pp. 264–265, 269–270, 308.

Various fields of work open to psychologists. Brief treatment of remuneration and advantages. Psychology considered under headings of education, research, health and healing.

Reymert, M. L. "An Attempt at a Rating Scale for Psychologists." January, 1922. *Psychological Bulletin* 30: 63–79.

Method followed in constructing a rating scale based on "training, experience, publications, recognized contributions to advancement of experimental techniques, membership rank." Designed to rank active psychologists, not prospective workers in the field.

Symonds, P. M. "Every School Should Have a Psychologist." September 9, 1933. *School and Society* 38: 321–329.

The need for a psychologist in every school. Functions of the school psychologist. Round table discussion.

Uhrbrock, R. S. "Industrial Jobs for Psychologists." December 1, 1933. *Science* 78: 508.

How to get a job as an industrial psychologist.

Uhrbrock, R. S. "Qualifications of Industrial Psychologists." March, 1937. *Occupations* 15: 488–492.

Qualifications for success; need for psychologists in industry; probable future trends.

Wallin, J. E. W. "The Field of the Clinical Psychologist and the Kind of Training Needed by the Psychological Examiner." April 19, 1919. *School and Society* 9: 463–470.

General review of the functions of clinical psychology and the skills needed for its practice. Detailed outline of the training considered necessary.

Woodworth, R. S. "The Future of Clinical Psychology." January–February, 1937. *Journal of Consulting Psychology* 1: 4–5.
Sanguine prediction regarding the future opportunities in the field.

The following letter has been sent to the heads of departments of psychology in American universities:

Dear Fellow Psychologist:

The undersigned have been asked to serve as a sub-committee of the newly formed American Association of Applied Psychologists' Committee on Employment, to study the matter of professional employment in the field of psychology and to make a report through the parent committee to the association. At present our problem falls into the following divisions:

1. Make available information regarding relative opportunities for employment in different fields open to competent psychologists.
2. Study the conditions of supply and demand in the profession, and make appropriate recommendations to training institutions.
3. Study new areas of employment opportunity and report upon them.
4. Study occupational trends and issue reports at regular intervals.
5. Compile and publish a pamphlet on "Psychology as a Profession," for the information of vocational counselors and students interested in the field.

Although the problem upon which we are working is a very important one, as yet there are no funds available for extensive research on the part of the committee. This means that any progress that is made must rest upon the cooperation of those interested in the project and the exploitation of one or two possibilities such as encouraging those who are making studies on the graduate level to choose a subject for research that will assist in one or all of the problems listed above.

We are sure you will agree with us that information such as that listed in the five propositions above is of utmost importance to those who are training young people in psychology and related fields. At present we are asking your cooperation in three ways as follows:

1. Inform us of any studies that have come to your attention, either published or in manuscript form, that you feel would be of assistance to us.
2. Advise us of any studies that you know are in process at the present time.
3. Encourage students who come under your direction to make studies dealing with our problem. In this connection we have attached a list of suggested topics that might form the basis for such research. The members of the committee will be glad to furnish bibliographical material to those interested in such studies. We might also be of service in reviewing outlines of such studies and making suggestions as to how the approach might be of more value.

Some suggested topics for graduate study dealing with psychology as a profession:

1. New applications of psychology in industry.
2. Professional opportunities in psychological counseling.
3. The school psychologist in secondary schools.
4. The school psychologist in elementary schools.
5. Educational and psychological research in non-school programs (Boy Scouts, Girl Scouts, Y. M. C. A., etc.).

6. The psychologist in social work.
7. Psychology in crime detection.
8. Psychological measurement in penal institutions.
9. The psychologist in juvenile institutions.
10. The psychologist in crime prevention.
11. Psychology in government work.
12. Psychology and vocational counseling.
13. The trend of employment for those trained in psychology.
14. Employment possibilities in legal psychology.
15. The psychologist in the summer camping program.
16. Trained psychologists and mental hospitals.
17. Opportunities for research specialists in psychology.
18. The trend in employment of university teachers of psychology.
19. Teachers of psychology on the secondary level.
20. Research psychologists in local school systems.
21. Psychologists in retail merchandizing.
22. A study of income of trained psychologists in various types of work.
23. The psychologist in market research.

Suggested information about individuals in a study of the professional field of psychology:

1. Age of entrance into the field.
2. Academic training. Years, degrees.
3. If holder of Ph.D., subject of dissertation.
4. Practical experience before employment in present work.
5. Description of nature of work.
6. Membership in national societies.
7. Subscriptions to scientific journals.
8. Contributions to scientific journals.
9. Annual income.
10. Income during first year.
11. Hours of work per week.
12. Opportunities for advancement.
13. Opportunities for actual research and creative writing.
14. Opinion as to future employment opportunities for psychologists in this field.
15. Recommendations with respect to type of training needed in work of this type.

Any help you can give us in this respect will be greatly appreciated.

Very sincerely yours,

E. De Alton Partridge, *Chairman*
State Teachers College,
Montclair, N. J.
P. M. Symonds,
Teachers College,
Columbia University,
New York City
C. L. Shartle,
United States Employment
Service,
Washington, D. C.

The first annual meeting of the New York State Association of Applied Psychologists was held at Columbia University on Saturday, May 7. There were round-tables on the subjects "Clinical Training." "Psychological Contributions to Vocational Guidance" and "Public Relations of Applied Psychologists." In the evening Dr. W. V. Bingham spoke on "The Interview—A Measuring Instrument?" and Dr. W. W. Coxe on "Psychology as a Profession."

A tentative program of the Seventh International Management Congress, which is to be held in Washington, D. C., from September 19–23, 1938, states that addresses will be given in pairs to introduce the American and foreign points of view on social and economic aspects of management. Six series of simultaneous Technical Sessions will provide for a discussion of recent developments in management techniques, pertaining to administration, production, distribution, personnel, agriculture and the home. General sessions will be held on topics of broad interest, such as: Management's Responsibilities to Society, The Influence of Technical Progress upon Social Development, Reshaping Distribution to Modern Economy, The Continuance of Free Enterprise and A Common Ground for Labor and Management. Those who are interested in attending this Congress may communicate with Nathaniel W. Barnes, Executive Secretary, Room 1201, 347 Madison Avenue, New York.

A Conference on Clinical Adjustment of Behavior Problems of School Children was held in the Office of Education, Department of the Interior, June 8 and 9, at the call of John W. Studebaker, Commissioner of Education. Fifteen of the nation's leaders in child guidance and adjustment attended the Conference. The chief purposes of the Conference were to study how school systems in the United States are organized for diagnosing and treating behavior problems of boys and girls and to learn how the Office of Education may help school officials and teachers in cities of all sizes to develop or improve this type of service.

The importance of special education to bring out the potentially valuable in our human resources was one of the main points stressed during the Fourth Annual Conference on Education and the Exceptional Child held under the auspices of the Child Research Clinic of the Woods Schools, Langhorne, Pa., May 3, 1938. Among the speakers and their topics were

the following: W. Rex Crawford, University of Pennsylvania, "A Cultural Approach to the Exceptional Child"; Mrs. Hedi Katz, Chatham Square Music School, New York, "Creative Music in the Progressive Education Program for the Exceptional Child"; J. E. W. Wallin, State Department of Public Instruction, Wilmington, Delaware, "Truancy from the Standpoint of the Schools"; Charles A. Ford, Temple University, Philadelphia, Pa., "Institutional Rearing as a Factor in Delinquency"; Stamwood Cobb, Chevy Chase Country Day School, Chevy Chase, Md., "The Inferiority Complex and Its Cure"; Mrs. Katherine M. Cook, Division of Special Problems, U. S. Office of Education, Washington, D. C., "The Need for Special Education for the Exceptional Child."

The World Book Company has announced the publication of a new group test of the inventory type entitled "Aspects of Personality." The authors are Rudolf Pintner, John J. Loftus, George Forlano and Benjamin Alster. The inventory for grades 4–9, contains three sections, a high score on the first indicating a tendency toward Ascendancy; on the second, Extroversion; and on the third, good Emotional Adjustment. The use of this test will focus attention on the personality make-up of the class and enable the teacher to discover those problem cases which need help. The price of this test is $1.25 per package of 25 copies.

A Conference on Visual Education and the Adult, marking the establishment of an experimental center for the development of this important field was held at Northwestern University, May 13 and 14, 1938. The program consisted of lectures stressing different phases of visual aids in industry, the community and college. Many types of audio-visual equipment were exhibited throughout the conference.

The purpose of a new "Personal Data Blank" by J. Gustav White, and published by the Stanford University Press, is to supplement objective tests and inventories. It is not a substitute for any of the standard tests. It is made up of questions concerning one's personal history, health, problems, interests and traits, education, occupation, aptitudes and preferences. It should be especially helpful to vocational counselors in that it furnishes a pretty complete picture of the counselee's physical and mental make-up.

"Living Through Biography," a series of readers for upper grades, by Edwin Diller Starbuck and Staff, University of Southern California, contains a collection of vivid stories of real men and women—their youthful days, the hardships and handicaps they overcame, the high

standards they held, and the work they accomplished. The underlying purpose is to present these life stories which are good reading and which will stimulate the right impulses and attitudes and distinctly enrich the personality of boys and girls. Grade placement of the selections has been carefully determined as to content, vocabulary and reading difficulty. The three volumes of the series, "The High Trail," "Real Persons," and "Actions Speak," are each priced at $1.00, with a Teacher's Manual, $0.32, and published by the World Book Company.

BOOK REVIEWS

J. D. Houser. *What People Want from Business.* New York: McGraw-Hill, 1938. Pp. xii + 250.

This book is a summary of some of the more important work the author's organization has been carrying on, though outside evidence is also presented in the discussions. An easy, flowing style introduces the reader to what the worker and consumer want from business, and the author has shown nicely that both groups want the same thing—ego satisfaction.

In the first part of the book, Houser makes the claim that there is no "labor problem." He shows that the dualism of labor and management is a false one, and presents evidence that the two groups do not differ essentially in their desires. He further debunks the common list of motives in industry (desire for high pay, low hours, promotion, etc.), quoting studies where these factors meant much less than did such items as knowing whether one's work is improving, assurance of a fair hearing for grievance, and the like.

The consumer and his demands are discussed in the second part of the work. The appeals that are usually made to the consumer, and the general type of appeal to which the consumer will actually best respond are contrasted. The author cites evidence to show that satisfaction of the ego is more of a factor in gaining confidence of the consumer than are such factors as price appeals. In a 1932 study, for example, attitudes towards three large companies were found to be conditioned by the personal treatment and consideration given the public by their dealers, and by the amount of interest shown in giving the public what it wanted.

In the last portion of the book, Houser discusses the integration of the demands of the consumer and the worker. He also argues that the same method of securing information can be used with both groups—that of the questionnaire.

As a matter of fact, the techniques used in measuring consumer and employee trends are emphasized throughout. Of particular interest to the reviewer was Houser's method of evaluating morale in a plant, which is discussed in some detail. Though the measurement of consumer attitude is not taken up in as great length, some of the more obvious pitfalls are briefly discussed.

This book is a definite contribution to an infant field of employee and consumer method. As such, it rather openly makes dogmatic statements which could not be too well defended. He states, for example, that the

wide spread of unionization is tragic, yet actually only time itself can make any evaluation on such a point.

Few psychologists interested in measurement can afford to neglect the book. Industrial engineers, industrial psychologists and executives will find it the answer to many of the problems about which they have been wondering.

ALBERT B. BLANKENSHIP,
Psychological Corporation.

RUCH, FLOYD L. AND WARREN, NEIL. *Working with Psychology.* Scott, Foresman & Company, New York. 1938.

This manual has been designed to "aid the instructor and student in establishing the facts, scientific methods, and the meanings of the introductory course." Each unit or "experiment" lays a foundation of knowledge by means of a *self-test*, questions on the important facts in the relevant chapter in the text. Then follows a section carefully outlined for a *group studies* experiment, the results of which must be pooled, analyzed, and written up. The final stage requires the student to make application of some of the principles he has learned.

The experiments are meant to be intensive rather than extensive, since it would be impossible "to cover all the facts in the chapter." The topics investigated include the reflexes, special senses, emotions, motivation, learning, thinking, personality, social and vocational guidance problems. The selection of topics was based on "the triple criterion of technical feasibility, fundamental psychological significance, and frequency of application to personal or social problems as they will be encountered and are encountered in daily living."

This manual should make a wide appeal on the basis of simple laboratory equipment required for most of the experiments, and also as a teaching device which helps the student not only to see the principles in psychology, but also to make some applications of these principles to daily life. The reviewer feels that especially the latter achievement in teaching General Psychology is entirely too infrequent, and that any attempt to remedy this lack is commendable.

J. R. GENTRY,
Ohio University.

STAFF OF THE INSTITUTE FOR JUVENILE RESEARCH. *Child guidance procedures. Methods and techniques employed at the Institute for Juvenile Research.* New York, D. Appleton-Century Co. 1937. Pp. vii + 362.

Child guidance as it is known today requires consideration of the child's physical, psychological, and social conditions. Any information in these areas, or in others, may be vital to a proper understanding of a particular

case, and may be uniquely necessary for a treatment program. To date there has been no effort made to develop a curriculum, based on the more significant aspects of these various fields, which would prepare for professional competence in dealing with problems of behavior. In place of this sort of professional training, child guidance clinics have found that cooperation among professional workers in the various fields is reasonably satisfactory. It is upon this sort of cooperation that the child guidance movement as fostered by the Commonwealth Fund has been based. Until the advent of the book now being reviewed there has been no work which attempted to integrate the contribution of each profession to the total problem, and to interpret the work of one profession to members of the others. It is just this task, well done, which makes *Child Guidance Procedures* so valuable.

Under the original chairmanship of Dr. Temple Burling, and later of Dr. R. L. Jenkins, a committee of the staff of the Illinois Institute for Juvenile Research has formulated a statement of the philosophy and methods of the child guidance clinic. Each professional group has stated its own contribution and these have been organized into a systematic whole. While the statements apply primarily to conditions at the Institute they do represent a clear account of the work of any clinic. The book is divided into five parts, the first of which discusses in three chapters the nature of childhood, its problems, and the child guidance approach to those problems. These chapters, together with the last one entitled "Perspective" constitute a clear and concise summary of the meaning and purpose of child guidance. In Part Two seven chapters are devoted to an elementary presentation of the diagnostic methods used at the Institute. One chapter each is devoted to the contribution of the social worker, the physician, the psychologist, the recreation worker, and the psychiatrist. In the third part therapeutic methods are discussed and illustrated by means of case studies divided into problems arising from (1) interference with the child's opportunity to grow; (2) failure to support the child's dependency; (3) failure of proper direction, training, or control; and (4) constitutional inadequacy of the child. The one chapter in Part Four deals with the clinic's relations to the community.

General evaluation of the book can best be summarized by saying that it should be required reading for all students in clinical psychology, social work, psychiatry, or education who expect to work with children. In the section on diagnostic study the chapters on the social history and the psychiatric interview are of particular value because of the material they contain concerned with interviewing. The chapter on medical study is weak, while the one on the psychological examination has much to say about tests in the old statistical manner, but at a very simple level. It is doubtful if this chapter really represents the total contribution of the psychologist to child guidance. The recreation study is a unique activity

of the Institute, and the chapter on it contains some very valuable suggestions. Discussion of therapy is always difficult because the details of procedure vary with each child. The authors have used the not too satisfactory methods of illustrative cases, which are valuable, but they have not given adequate general discussion of the principles involved.

As a psychologist I cannot forbear taking issue with one point of view several times expressed in this book. In no way does this particular point detract from the book's general value. The writer of the chapter on "The Psychological Examination" begins thus: "The clinical psychologist is concerned with the evaluation of the child's innate abilities, educational achievements, and special aptitudes." This same idea is expressed in other places in the book. Early in the chapter on "The Psychiatric Interview" it is stated that "the special contribution of the psychiatrist is the discovery and elucidation of the child's inner motives as these are revealed by his behavior in the situations in which he is placed." A few sentences further on its says that the psychologist is concerned with the child's intellectual functions, while the psychiatrist is concerned with a study of the emotions. This point of view is not unique with the Institute; it has been stated by other writers. However, it has no basis in fact, either historical or experimental. This is not the place for an essay on "Who owns the emotions?", nor could a very strong brief be made for any sort of vested interest in this field. In the practical problems of behavior guidance allocation of certain aspects of behavior to different professional groups is an absurdity. If there must be allocation it should be to individuals. Many psychologists are far better prepared to deal with the problem of motives than are many psychiatrists, and there are psychiatrists better able to deal with intellectual functions than some psychologists. The point of view expressed in the above quotations is that firmly held by many psychiatrists, and imposed by them because of an extension of their vested interest in human ills. With such an attitude uppermost there can be only lip-service to cooperation among professional groups which this book emphasizes as the basis of child guidance work.

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Floyd L. Ruch. *Psychology and Life.* New York: Scott, Foresman & Co., 1937. Pp. xiv + 679.

Ruch's approach to the contents of an elementary psychology text is a novel and compelling one. He used the techniques of market research to determine the interests and needs of three groups of persons—1000 college students who had completed their first course in psychology, 200 former psychology students who had been out of college for 10 years, and 100 professional educators. Fortunately for his purposes, the needs and

interests of these three groups were essentially similar, so Ruch felt that by following their needs, he would have succeeded in making the material in the elementary course well adapted to the beginner in psychology. However, it is debatable whether, as the author claims, the groups studied can adequately evaluate the subject matter of psychology to determine what they should be taught. Can these groups really describe their needs? May not the psychologist be in a much better position to do so, knowing both the field of psychology and human nature so much more intimately?

In line with the underlying policy of emphasizing the needs of the student, the author has written his text around the relationship of the individual and society. Both the personal and social implications of psychological material are discussed.

For example, in the first part of the book, the student is briefly introduced to the subject matter of psychology, and then the psychology of individual differences is presented. Motivation and emotions are the core of the second portion of the book, while in the third part, typical personal and social problems in which psychology can aid (such as vocational guidance, getting along with people, industrial unrest, education, etc.) are described. The final section comprises observing, learning and thinking.

Following his market analysis results, Ruch does not discuss such topics as the nervous system or physiology of the sense organs. Inasmuch as the nervous system is the basis for all behavior, this seems to be a serious omission. And at least a casual knowledge of the sense organs is essential for understanding their functioning. Both of these topics could be presented in an interesting way, so that the author could have maintained his high level of interest with little difficulty, even with these topics included. His omission of highly controversial material, such as detailed theories, and of the schools of psychology, is very commendable, for no beginning student in psychology should be subjected to this sort of discussion. Nor, as the author states, is the book written "in loyalty" to anything. It is not written from a point of view, with the result that the material is not biased.

Ruch has succeeded where many others have failed. He has indeed written a readable, interesting elementary textbook. His style is flowing, vivid, dramatic. The really remarkable way in which he "ties in" the various psychological topics, and his ability to retain the reader's interest in making the transition make one very favorable towards the entire book. The material presented is inclusive, and not too detailed for its purpose. The author has catered to the recently demonstrated demand for picture publications by illustrating each section of the book with highly interesting, almost sensational photographs.

One thing not in keeping with the otherwise easy readability of the book is the difficulty in locating a reference. All citations in the text

are indicated only by a footnote number, which refers to the number of the footnote in the chapter. The reader must then look in the bibliography, located in the back of the book, under the particular chapter number, where only chapter numbers without titles are listed. Thus one must either look again for his chapter number, or hunt through the references for several chapters until he locates the one in which he is interested.

The crowning virtues of the book for the elementary class are its ease of reading, its inclusiveness without introduction of controversial material, and the interest it provides for the reader. It performs all of these functions so well that it should be useful not only for the elementary psychology student, but also for the casual reader who wants to get a simple and interesting, yet scientific presentation of psychological principles.

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Psychological Corporation.

NEW BOOKS AND PAMPHLETS RECEIVED

Books and pamphlets for review should be sent to Jame P. Porter, *Editor*, JOURNAL OF APPLIED PSYCHOLOGY, Ohio University, Athens, Ohio.

Social Life and Personality. BOGARDUS, EMORY S., AND LEWIS, ROBERT H. Silver Burdett Co., New York, 1938. $1.80. 581 pp.

Survey of American Higher Education. CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING. 522 Fifth Avenue, New York, 1937. 538 pp.

Recent Experiments in Psychology. CRAFTS, LELAND W., SCHNEIRLA, THEODORE C., ROBINSON, ELSA E., AND GILBERT, RALPH W. McGraw-Hill Book Company, New York, 1938. $2.25. 417 pp.

Civilization and Diseases. DONNISON, C. P. William Wood & Co., Baltimore, Md., 1938.

What People Want from Business. HOUSER, J. DAVID. McGraw-Hill Book Co., New York, 1938. $2.50. 250 pp.

Propaganda from China and Japan. LASKER, BRUNO AND ROMAN, AGNES. American Council Institute of Pacific Relations, 129 E. 52nd Street, New York, 1938. $1.50. 120 pp.

Working with Psychology. RUCH, FLOYD L., AND WARREN, NEIL. Scott, Foresman & Co., New York, 1938. 214 pp.

Mental Health Through Education. RYAN, W. CARSON. The Commonwealth Fund, 41 E. 57th Street, New York, 1938. $1.50. 815 pp.

A Simplified Guide to Statistics. SMITH, G. MILTON. Farrar & Rinehart, New York, 1938. 60 cents. 70 pp.

Survey of Employment Service Information. STEAD, WILLIAM H., Associate Director. Division of Standards and Research, U. S. Government Printing Office, Washington, D. C., 1938. 20 cents. 142 pp.

An Introduction to Child Study. STRANG, RUTH. Macmillan Company, New York, 1938. $3.00. 681 pp.

Psychology and the Motorist. TOOPS, HERBERT A., AND HAVEN, S. EDSON. R. G. Adams & Co., Columbus, Ohio, 1938. $2.00. 265 pp.

Experimental Foundations of General Psychology. VALENTINE, WILLARD L. Farrar & Rinehart, New York, 1938. $2.00. 377 pp.

Psychology in Everyday Life. VARNUM, WALTER C. McGraw-Hill Book Company, New York, 1938. $2.75. 444 pp.

The Science of Human Behavior. WAIT, WALLACE T. Ronald Press, New York, 1938. $2.75. 335 pp.

Teacher and Behavior Problems. WICKMAN, E. K. The Commonwealth Fund, 41 E. 57th Street, New York, 1938. 25 cents. 40 pp.

Directory of American Psychological Periodicals

(Continued)

Journal of Comparative Psychology—Baltimore: The Williams & Wilkins Co. Subscription $5.00 per volume of 450 pages. Two volumes every year. Edited by Knight Dunlap and Robert M. Yerkes. Founded 1921.

Comparative Psychology Monographs—Baltimore: Johns Hopkins University Press. Subscription $5.00. 400 pages per volume. Knight Dunlap, Managing Editor. Published without fixed dates, each number a single research. Founded 1922.

Genetic Psychology Monographs—Provincetown, Mass.: The Journal Press. Subscription $7.00 per volume. One volume per year. Edited by Carl Murchison and an international cooperating board. Quarterly. Each number one complete research. Child behavior, animal behavior and comparative psychology. Founded 1925.

Psychological Abstracts—Ohio State University, Columbus, Ohio: American Psychological Association. Subscription $7.00 a year ($7.25 foreign). 700 pages ann. Edited by W. S. Hunter. Monthly. Abstracts of psychological literature. Founded 1927.

Journal of Genetic Psychology—Provincetown, Mass.: The Journal Press. Subscription $14.00 per annum; $7.00 per volume. 1,000 pages annually (2 volumes). Edited by Carl Murchison and an international cooperating board. Quarterly. Child behavior, animal behavior and comparative psychology. Founded 1891.

Journal of Social Psychology—Provincetown, Mass.: The Journal Press. Subscription $7.00. 500–600 pages annually. Edited by John Dewey, Carl Murchison, and an international cooperating board. Quarterly. Political, racial, and differential psychology. Founded 1929.

Personnel Journal—Baltimore: The Williams & Wilkins Co. Subscription $5.00. 500 pages, approximately. Edited by Walter V. Bingham. Bi-monthly.

Mental Measurement Monographs—Baltimore: The Williams & Wilkins Company. Subscription $5.00. 400 pages annually. Edited by Knight Dunlap and Buford Johnson. Published without fixed dates, each number a single research. Founded 1925.

Studies in Psychology and Psychiatry—Baltimore: The Williams & Wilkins Company. Subscription $5.00. 400 pages annually. Edited by Edward A. Pace. Published without fixed dates, each number a single research. Founded 1926.

Journal of Educational Psychology—Baltimore, Md.: Warwick & York. Subscription $6.00. Edited by Jack W. Dunlap, Harold E. Jones, and Percival M. Symonds. Published monthly except June to August. Founded 1910.

Child Development—Baltimore, Md.: Williams & Wilkins Company. Subscription $5.00. 400 pages annually. Edited by Buford Johnson. Quarterly. Founded 1930.

Character and Personality—Durham, N. C.: Duke University Press. Subscription $2.00 per annum. Quarterly. Published simultaneously in Great Britain and the United States. Edited by Charles E. Spearman (London) and Karl Zener (Duke University). Founded 1932.

Journal of Psychology—Provincetown, Mass.: The Journal Press. Subscription $14.00 per annum; $7.00 per volume. 1000–1200 pages annually. Immediate publication for any accepted manuscript. Edited by Carl Murchison and an editorial board. Quarterly. The general field of psychology. Founded 1935.

Directory of American Psychological Periodicals

American Journal of Psychology—Ithaca, N. Y.: Cornell University. Subscription $6.50. 600 pages annually. Edited by E. B. Titchener, M. F. Washburn, M. Bentley, E. G. Boring. Experimental and experimental psychology. Founded 1887.

Journal of General Psychology—Provincetown, Mass.: The Journal Press. Subscription $14.00 per annum; $7.00 per volume. 1000 pages annually (2 volumes). Edited by Carl Murchison and an international cooperating board. Quarterly. Experimental, theoretical, critical, and historical psychology. Founded 1927.

Psychological Review—Ohio State University, Columbus, Ohio: Psychological Review Company. Subscription $5.50 (foreign, $5.75). Single copies, $1.00. 540 pages annually. Bi-monthly. Original contributions only. Edited by Herbert S. Langfeld. Founded 1894.

Psychological Monographs—Ohio State University, Columbus, Ohio: Psychological Review Company. Subscription $6.00 per vol. 500 pages. Edited by John F. Dashiell. Published irregularly, each issue one or more researches. Founded 1895.

Psychological Index—Ohio State University, Columbus, Ohio: Psychological Review Company. Subscription $4.00. 400–450 pp. Edited by W. S. Hunter and [illegible] Bibliography. An annual bibliography of psychological literature. Founded 1895.

Psychological Bulletin—Ohio State University, Columbus, Ohio: Psychological Review Company. Subscription $6.00. 720 pages annually. Psychological literature. Monthly (10 numbers). Edited by John A. McGeoch. Founded 1904.

Archives of Psychology—New York: Columbia University. Subscription $6.00. 500 pp. ann. Ed. by R. S. Woodworth. Published without fixed dates, each number a single experimental study. Founded 1906.

Journal of Abnormal and Social Psychology—Ohio State University, Columbus, Ohio: American Psychological Association. Subscription $5.00. Foreign, $5.25. Editor, Gordon W. Allport. Quarterly. 560 pages annually. Abnormal and social. Founded 1906.

Psychological Clinic—Philadelphia: Psychological Clinic Press. Subscription $2.00. 300 pages. Ed. by Lightner Witmer. Without fixed dates (Quarterly). Orthogenics, psychology, hygiene. Founded 1907.

Psychoanalytic Review—Washington, D. C.: 3617 10th St., N.W. Subscription $6.00. 500 pages annually. Psychoanalytic Quarterly. Ed. by W. A. White and S. [illegible]. Founded 1913.

Journal of Experimental Psychology—Ohio State University, Columbus, Ohio. Monthly; two volumes per year, each volume of six numbers containing about 625 pages. Experimental. Subscription, $14.00 ($7.00 per volume). Edited by S. W. Fernberger. Founded 1916.

Journal of Applied Psychology—Lancaster, Pa.: Science Press Printing Co. Subscription $5.00. 500 pages annually. Bi-monthly. Edited by James P. Porter, Ohio University, Athens, Ohio. Founded 1917.

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